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UNITED STATES ARMY
IN WORLD WAR II



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MEDICAL DEPARTMENT, UNITED STATES ARMY

UNITED STATES ARMY VETERINARY SERVICE IN WORLD WAR II

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The Surgeon General, United States Army

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UNITED STATES ARMY VETERINARY SERVICE in WORLD WAR II

by

Lieutenant Colonel Everett B. Miller, VC, USA

Anal.

MEDICAL DEPARTMENT, UNITED STATES ARMY

The volumes comprising the official history of the Medical Department of the U.S. Army in World War II are prepared by The Historical Unit, U.S. Army Medical Service, and published under the direction of The Surgeon General, U.S. Army. These volumes are divided into two series: (1) The administrative or operational series; and (2) the professional, or clinical and technical, series. This is one of the volumes published in the latter series.

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Foreword

The Army Veterinary Service has three major missions: (1) Inspection of food used by the military including its processing and the sanitary inspections of the establishments producing it; (2) provision of a comprehensive animal service; and (3) conduct of veterinary laboratory services concerned with food and various types of research. All of these missions assist the Army Medical Service to protect the health of human beings and animals.

The veterinary animal service, as might have been expected, was the major activity of the Veterinary Corps in World War I. Great numbers of horses and mules were used, in a ratio of one animal to every three men. The outcome of major campaigns frequently depended upon the size and efficiency of animal transport. In World War II, which was a war of men and machines, the ratio was 1 animal to every 134 men. Obviously, in such a war, food inspection was the principal task of the Army Veterinary Service, and medical service for animals was of somewhat lesser importance. In World War I, an estimated 20 percent of Veterinary Corps personnel were utilized to inspect the Army's subsistence supply. In World War II, between 90 and 95 percent were used for this purpose.

The Army Veterinary Service is a component of the Army Medical Service and as such shares the responsibility of safeguarding the health of the Army. It fulfilled a vital mission in World War II by inspection of the food intended for troop consumption at the time of its purchase and receipt, as well as during its storage and shipment. As part of this mission, Veterinary Corps personnel inspected civilian as well as government installations to insure proper sanitation and techniques of storage and handling of all meat and meat products, marine and dairy products, and nonanimal products. These foodstuffs might readily have become contaminated and thus rendered not only useless but dangerous to the health of personnel had they been consumed.

None of these dangers came to pass. Between 1940 and 1945, personnel of the Veterinary Corps conducted an inspection service which aggregated more than 142 billion pounds of meat and dairy products. Enormous quantities of perishable foods were procured, shipped, and distributed on a worldwide basis, on a heretofore unimaginable scale, and under the most adverse conditions. It is impossible to overemphasize the contribution to the war effort made by the Veterinary Corps in the maintenance of the health of the Army by its food inspection service.

More than gross inspection of these foods was required. An essential part of the service was laboratory analysis to substantiate organoleptic tests and detect deficiencies not otherwise discernible. To provide readily available facilities for this special mission to all veterinary officers, no matter where

they might be stationed, all area, medical general, and the numbered laboratories in oversea theaters had veterinary sections properly equipped and staffed with personnel specially trained to perform chemical or bacteriologic analyses required in connection with inspection of foods of animal origin. During World War II, the 11 such laboratories in the United States and the 23 units overseas analyzed approximately 225,000 food specimens of animal origin.

Because World War II was a global war, the activities of these laboratories varied widely, according to the quality and quantity of available perishable foodstuffs and the types of animal diseases endemic in the region. The animals from which meat products were obtained were subject to many diseases directly transmissible to man, such as tuberculosis, Malta fever, anthrax, actinomycosis, taeniasis, and glanders. In oversea theaters, particularly in the tropics, diseases new to United States troops were encountered, and many well-known diseases took on new importance, especially such entities as leishmaniasis, leptospirosis, rabies, ornithosis, and others that could spread from animals to troops. Some diseases, such as anthrax, canine distemper, pigeon pox, rabies, tetanus, and equine encephalomyelitis, were readily prevented by animal immunization, which was, of course, the responsibility of the Veterinary Corps.

Although its activities were chiefly centered on food inspection, the Veterinary Corps was responsible in World War II for the professional care of over 56,000 horses and mules used by the Army, as well as thousands of war dogs. It was also responsible for veterinary service for the pigeons used by the Signal Corps; for the animals used for laboratory tests, experimental purposes, and the production of sera; and for livestock of various types.

Another mission of the Army Veterinary Service in World War II was carried out in conjunction with Civil Affairs and Military Government. It served as a coordinating agency in reestablishing the veterinary service of wartorn lands; in getting their livestock industries back into production; and in increasing their production of biologicals and veterinary supplies. It is highly significant that after World War II, plagues of animal diseases, for the first time in history, did not sweep across continents and add to the famine and chaos which ordinarily follow war. The Veterinary Service has an important future in this field, which encompasses a knowledge of diseases and of the care of all types of livestock; a knowledge of the principles of quarantine and of the national and international laws relating to it; and a worldwide knowledge of veterinary science.

It is small wonder, in view of its varied missions and responsibilities, that the Army Veterinary Service expanded from its regular strength of approximately 126 officers in 1939 to 2,116 in August 1945, and that its enlisted strength during the period of hostilities ranged between 6,000 and 8,000.

Lt. Col. Everett B. Miller, VC, the author of this volume, has devoted much time and effort to the preparation of this permanent record of the

activities of the Army Veterinary Service in World War II. Appreciation is also due to Col. George L. Caldwell, VC, USA (Ret.), formerly Assistant Chief, Veterinary Service, Office of The Surgeon General. As editor of this volume, Colonel Caldwell has supplemented Colonel Miller's fine work.

Together, author and editor have produced a volume which discusses, in proper perspective, the major problems encountered, and the measures taken to solve them, by the U.S. Army Veterinary Service in World War II. The outstanding record of the Army Veterinary Service in World War II is one of which our Nation may well be proud. It sets a pattern for emulation by those responsible for planning veterinary programs for the future.

LEONARD D. HEATON,
Lieutenant General,
The Surgeon General.

Preface

This volume is the result of the first opportunity ever granted an officer of the U.S. Army Veterinary Corps to write—from the inside, so to speak—an official history of American military veterinary medicine. From beginning to end, my purpose, whether or not I have accomplished it, has been to meet the needs of the medical man, the military staff officer, and the interested public, as well as the requirements of the Army Medical Service's historical program.

Future works on the subject may correct inadvertent errors in this account or may add facts which through lack of time or limitation of space I was unable to include. They will not, I believe, convey the sense of urgency which I have felt throughout the task. As a Veterinary Corps officer who from the beginning of his military career in 1941 aspired to an appointment in the Regular Army—an appointment obtained shortly after World War II—I saw the profession of military veterinary medicine threatened with extinction while this volume was in its later stages. This assault on the profession and my closeness to the events might have made my account less a history than a voluminous obituary. Actually, it strengthened my determination to make the work a definitive and objective record.

My principal sources have been official documents of the Veterinary Division, Office of The Surgeon General, and the semipersonal letters written by officers of the Veterinary Corps. I have not attempted to distinguish the actual authorship of documents but have attributed them to those who signed them, even though the signers were not always the individuals who prepared them. Any other course would have unduly prolonged the research.

I am specially indebted to Brig. Gen. Wayne O. Kester, USAF (Ret.), for encouraging me to undertake the work. It was he, then a colonel in the Army, who turned over the assignment to me upon his transfer to the new Air Force, in which he became chief veterinary officer. At this early period, I was also associated with Capt. Julius J. Shaffer, MSC Reserve, now a civilian. I wish to extend my most heartfelt thanks to Brig. Gen. James A. McCallam, USA (Ret.), to Brig. Gen. Jacob L. Hartman, USA (Ret.), and to Brig. Gen. Elmer W. Young, USA (Ret.), who as successive heads of the Veterinary Corps gave warm and appreciative support during the years when this history was in the making. To Col. George L. Caldwell, VC, USA (Ret.), Col. Ralph W. Mohri, VC, USA (Ret.), and Brig. Gen. Russell McNellis, VC, former members of the Veterinary Division, Office of The Surgeon General, I respectfully acknowledge a very personal debt for the understanding and patience shown me. My obligation to Colonel Caldwell is particularly great, for it was he who, after my departure to another assignment, technically edited the manuscript. In so doing, the book has

benefited from his long experience, extensive knowledge of Army veterinary medicine, and the mature perspective with which he so willingly carried out that chore.

Finally, I am deeply grateful to Maj. Gen. Joseph H. McNinch, to Brig. Gen. Roger G. Prentiss, Jr., USA (Ret.), former heads of The Historical Unit, Army Medical Service, and to Col. John Boyd Coates, Jr., MC, its present Director. Colonel Coates and Colonel Mohri are mainly responsible for the incentive and, I must add, the kindly firmness that were needed to bring my tedious labors to a fruitful end.

Also, I gratefully acknowledge the assistance of Mrs. Elaine R. Stevenson, publications editor of the Editorial Branch, Historical Unit, who performed the final publications editing and prepared the index for this volume.

Additionally, there are Miss Lucy W. Hansucker, Mrs. Josephine P. Kyle, Miss Janie W. Williams, and Mrs. Willa B. Dial—in that sequence—who, fortunately for me, entered into the life of the book, gaining a share of my troubles in gathering material, preparing manuscripts, and doing other housekeeping affairs. And to Betty Jane Miller, my wife, I owe much.

Everett B. Miller,
Lieutenant Colonel, VC.

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CHAPTER I

Evolution of Military Veterinary Medicine 1775–1916

Military veterinary medicine began with the origin of the U.S. Army and rather closely parallels the development of the profession of veterinary medicine in the United States. Between 14 June 1775 and 3 June 1916, or until congressional legislation created a commissioned officers' corps of veterinarians in the Army, much of the history of military veterinary medicine must be gleaned from the histories of the mounted combat arms and medical and supply services. These histories include references to veterinary affairs which in chronologic sequence present a fairly clear-cut picture of the development of military veterinary service.

Cavalry, frequently known by other names, the combat arm formed in 1777, became the birthplace of military veterinary medicine in 1792 (*1*). Congressional legislation of 1792 provided that each of the four troops of light dragoons (cavalry) would have one farrier to care for the ailments of horses. The heritage of the Veterinary Corps officer is specifically traced to horseshoers and farriers who acted as animal nurses in the "old, old Army." In fact, the horseshoe-shaped insigne of the farrier was once carried into the design of the veterinarian's distinctive insigne which, for a few years before World War I, included the undersurface of a shod horse's foot.

In 1798, the number of farriers had increased from 4 to a total of 10, and the original pay of $8 had been increased to $10 per month. Cavalry and farriers were not a part of the Army from 1802 to 1808, but in the latter year Congress provided for a regiment of cavalry for which eight farriers were authorized. Farriers were first included in horse artillery in 1812. Due to reduction in the horsed combat arms following the War of 1812, the farrier disappeared from the military scene until 1833, when a regiment of cavalry was formed with a complement of 10 farriers. Ten additional farriers appeared when a second cavalry regiment was organized in 1836.

The 1834 and 1835 editions of General Regulations for the Army described the annual report of the Inspector General as including a discussion of the "Veterinary Department of Cavalry," noted "* * * whether the Veterinary Surgeon is competent to the duties of his station. * * * whether the farriers are properly instructed and expert in their business * * *." This is likely the first use of the term "veterinary surgeon" in official Army publications, but it is fairly probable that it may have been used interchangeably with "farrier" as it has not been established that there were any veterinarians in the Army at that time. Pay tables did not list a veterinary surgeon.

It appears that the Quartermaster's Department may have contemplated the hiring of civilian veterinarians as early as 1837, but there is no evidence of congressional appropriation for such purpose prior to the appropriation act for the fiscal year 1849 (*2*). That few veterinarians were hired might be evidenced by the fact that, during the fiscal year that marked the beginning of the Civil War, the Quartermaster's Department expended only $168.50 for services of civilian veterinarians.

During the war with Mexico and through the period of Indian fighting before the Civil War, the number of farriers varied with the number of mounted units authorized, but their general status remained more or less unchanged. With the beginning of the Civil War, a veterinary sergeant was authorized for each of the three battalions in a cavalry regiment. It may be presumed that he had the duty of supervising farriers with companies of the battalion. He received $17 per month and ranked with a sergeant of cavalry. This grade of veterinary sergeant was dropped in 1862, but under the act of 3 March 1863 each regiment of cavalry was authorized a regimental veterinary surgeon with the rank of regimental sergeant major and pay of $75 per month (*3, 4*). Appointments were made by the Secretary of War following selection by the chief of the Cavalry Bureau upon nomination by regimental commanders. The increased grade and pay was likely provided as a result of the Army's terrific animal loss due to disease and in an effort to obtain better qualified personnel to provide veterinary service. There were apparently no fixed standards of education and experience, and it seems probable that not more than a very few graduate veterinarians applied for or received appointment. During the Civil War, the Quartermaster's Department spent $93,666.47 for the hire of civilian veterinarians.

After the Civil War, the total of six Regular Army cavalry regiments was augmented by four additional regiments. Unlike each of the six older regiments which were authorized one veterinary surgeon, each of the newly formed regiments was authorized two veterinary surgeons, one of whom was designated "Senior Veterinary Surgeon" and received pay of $100 per month. This disparity in personnel authorization persisted until 1899. One of the important milestones in the improvement of military veterinary service was the requirement set forth in Army General Orders of 1879 and first included in Army Regulations of 1881 that thereafter all appointed as veterinary surgeons with Cavalry were to be graduates of established and reputable veterinary schools or colleges. The regulations also provided that the veterinary surgeons would have rank and precedence comparable to those of a sergeant major. The 1881 appropriation act provided for 14 veterinary surgeons with Cavalry, but it appears that there were actually 12 on duty (*5*). The Quartermaster's Department was at that time employing one full-time veterinarian for the care of animals, and in the later 1880's several more were employed for this purpose.

At the beginning of the Spanish-American War, the Cavalry was authorized 14 veterinary surgeons (4 seniors and 6 juniors) for its 10 regiments (*6*). Artillery reentered the evolution of the Army Veterinary Service where each battery of field artillery was authorized a veterinary sergeant; previously, in 1812, horsed artillery had farriers and after 1861 was provided with artificers who very likely performed the duties of farriers.

The end of the investigation of the "embalmed meats" of the Spanish-American War marked the start of the Army's veterinary food inspection service. In July 1901, a veterinarian was transferred from the U.S. Department of Agriculture and appointed Meat Inspector, Subsistence Department at Large, U.S. Army for the purpose of making receipt inspections of meats in addition to inspections made prior to delivery by veterinary inspectors of the U.S. Department of Agriculture (*7*). By 1906, the number of Army subsistence veterinary inspectors had been increased to six, and War Department Orders had directed post commanders to use veterinarians to conduct ante mortem and post mortem inspections of beef purchased locally.[1]

Congressional legislation in 1899, after the beginning of the Philippine Insurrection, greatly improved the lot of Army veterinarians with Cavalry. It provided that every regiment of cavalry would be authorized two veterinarians, one to have the pay and allowances (not the rank) of a second lieutenant of Cavalry and the other the pay of $75 per month and the allowances of a sergeant major. Later, the senior veterinarian was accorded a rank between that of a cadet and second lieutenant, the highest rank achieved by veterinarians prior to the authorization of a corps of commissioned officers in 1916.

The so-called Army Reorganization Act of 1901 made further improvement in the status of the Army veterinarian by providing that all veterinarians (two for each regiment of cavalry and one for each regiment of artillery) would have the pay and allowances of a second lieutenant. The number of such veterinarians was 42 (*8*).[2] The act also provided that veterinarians employed as civilians by the Quartermaster should receive pay of $100 per month. The Quartermaster's Department became the Army's largest user of veterinarians, and at one time it had more than 60 veterinarians employed as civilians in the Philippine Islands (*9*). The pay of veterinarians employed as civilians (contract veterinarians) remained at the $1,200 per year level in spite of repeated efforts of The Quartermaster General to obtain a pay status more nearly comparable with that of Army veterinarians with Cavalry and Field Artillery (*10*). The pay of veterinarians of Cavalry and Field Artillery was increased in 1908 from the previous $1,500 to $1,700

[1] Dr. C. W. Johnson was the original appointee, followed by Dr. W. H. McKinney for duty in Kansas City, Mo. Drs. G. A. Lytle, D. A. Hughes, and C. J. Loveberry, in 1906, were stationed at Chicago, Ill., Omaha, Nebr., and San Francisco, Calif., respectively. The death of Johnson (in 1911) and of McKinney (in 1914) created position vacancies which were filled by the appointments of Drs. T. H. Jones and S. R. Ingram.

[2] The Congressional appropriations act of 2 March 1901 provided for the pay of 42 veterinarians, including the 12 in Artillery.

per year (pay of second lieutenant, mounted). Retirement of veterinarians with Cavalry and Field Artillery was first authorized under the provisions of the appropriation act of 1911.

During the 124 years between 1792, when the farrier was first authorized, and 1916, when the commissioned Veterinary Corps was authorized, the military veterinary service moved forward nearly in pace with the progress being made by veterinary medicine in the United States at large. The progressive improvement in military veterinary service was due to (1) increasing appreciation by the military and legislative branches of the real need for such service, (2) the inherent desire of nearly every individual veterinarian in the service to provide better service and to improve his personal status, and (3) the unceasing effort of civilian veterinarians through the American Veterinary Medical Association to improve military veterinary service and the status of their professional brothers in the service of their country. Although much improvement in veterinary service had been effected, there was still much room for improvement. The service was being provided by separate groups of veterinarians—two fully militarized groups, the veterinarians with Cavalry and Field Artillery, and two civilian employee groups, the meat inspection and animal service veterinarians working for The Quartermaster General. Proper coordination in and between groups was lacking, pay rates were not uniform, and the overall service did not have an Army-wide organization to exercise administrative, functional, and policy control. These shortcomings were overcome when the National Defense Act of 1916 made provision for a Veterinary Corps of commissioned officers and wisely made the corps a component of the Medical Department.

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CHAPTER II

Development of the Army Veterinary Service 1916–1940

The history of the development of the Army Veterinary Service during the period between 1916 and World War II devolves on such a large number of subjects that it will be considered by major topical subjects and each will be discussed in chronologic order.

LEGISLATION AND MAJOR ADMINISTRATIVE DIRECTIVES

The congressional legislation authorizing the Veterinary Corps was section 16 of the National Defense Act, approved 3 June 1916. This important historical document is quoted:

Sec. 16. VETERINARIANS.—The President is hereby authorized, by and with the advice and consent of the Senate, to appoint veterinarians and assistant veterinarians in the Army, not to exceed, including veterinarians now in service, two such officers for each regiment of Cavalry, one for every three batteries of Field Artillery, one for each mounted battalion of Engineers, seventeen as inspectors of horses and mules and as veterinarians in the Quartermaster Corps, and seven as inspectors of meats for the Quartermaster Corps; and said veterinarians and assistant veterinarians shall be citizens of the United States and shall constitute the Veterinary Corps and shall be a part of the Medical Department of the Army.

Hereafter a candidate for appointment as assistant veterinarian must be a citizen of the United States, between the ages of twenty-one and twenty-seven years, a graduate of a recognized veterinary college or university, and shall not be appointed until he shall have passed a satisfactory examination as to character, physical condition, general education, and professional qualifications.

An assistant veterinarian appointed under this Act shall, for the first five years of service as such, have the rank, pay, and allowances of second lieutenant; that after five years of service he shall have the rank, pay, and allowances of first lieutenant; that after fifteen years of service he shall be promoted to be a veterinarian with the rank, pay, and allowances of captain, and that after twenty years' service he shall have the rank, pay, and allowances of a major: *Provided*, That any assistant veterinarian, in order to be promoted as hereinbefore provided, must first pass a satisfactory examination, under such rules as the President may prescribe, as to professional qualifications and adaptability for the military service; and if such assistant veterinarian shall be found deficient at such examination he shall be discharged from the Army with one year's pay.

The veterinarians of Cavalry and Field Artillery now in the Army, together with such veterinarians of the Quartermaster Corps as are now employed in said corps, who at the date of the approval of this Act shall have had less than five years' governmental service, may be appointed in the Veterinary Corps as assistant veterinarians with the rank, pay, and allowances of second lieutenant; those who shall have had over five years of such service may be appointed in said corps as assistant veterinarians with the rank, pay, and allowances of first lieutenant; and those who shall have had over fifteen years

of such service may be appointed in said corps as veterinarians with the rank, pay, and allowances of captain: *Provided*, That no such appointment of any veterinarian shall be made unless he shall first pass satisfactorily a practical professional and physical examination as to his fitness for the military service: *Provided further*, That veterinarians now in the Army or in the employ of the Quartermaster Corps who shall fail to pass the prescribed physical examination because of disability incident to the service and sufficient to prevent them from the performance of duty valuable to the Government shall be placed upon the retired list of the Army with seventy-five per centum of the pay to which they would have been entitled if appointed in the Veterinary Corps as hereinbefore prescribed.

The Secretary of the War, upon recommendation of the Surgeon General of the Army, may appoint in the Veterinary Corps, for such time as their services may be required, such number of reserve veterinarians as may be necessary to attend public animals pertaining to the Quartermaster Corps. Reserve veterinarians so employed shall have the pay and allowances of second lieutenant during such employment and no longer: *Provided*, That such reserve veterinarians shall be graduates of a recognized veterinary college or university and shall pass a satisfactory examination as to character, physical condition, general education, and professional qualifications in like manner as hereinbefore required of assistant veterinarians; such reserve veterinarians shall constitute a list of eligibles for appointment as assistant veterinarians, subject to all the conditions hereinbefore prescribed for the appointment of assistant veterinarians.

Within a limit of time to be fixed by the Secretary of War, candidates for appointment as assistant veterinarians who shall have passed satisfactorily the examinations prescribed for that grade by this Act, shall be appointed, in the order of merit in which they shall have passed such examination, to vacancies as they occur, such appointments to be for a probationary period of two years, after which time, if the services of the probationers shall have been satisfactory, they shall be permanently appointed with rank to date from the dates of rank of their probationary appointments. Probationary veterinarians whose services are found unsatisfactory shall be discharged at any time during the probationary period, or at the end thereof, and shall have no further claims against the Government on account of their probationary service.

The Secretary of War shall from time to time appoint boards of examiners to conduct the veterinary examinations hereinbefore prescribed, each of said boards to consist of three medical officers and two veterinarians.

Little had been accomplished toward implementation of the provisions of the above-cited act before the entry of the United States in World War I. The Selective Service legislation (Overman Act) of 18 May 1917 gave the President full authority for expanding the Veterinary Corps beyond the provisions of the National Defense Act (*1*). Under this authority, War Department General Orders No. 130 (section III), 4 October 1917, established the Veterinary Corps, National Army, as follows:

1. The President directs that under the authority conferred by section 2 of the act "To authorize the President to increase temporarily the Military Establishment of the United States" approved May 18, 1917, there be organized for the period of the existing emergency a Veterinary Corps, National Army, to consist of the commissioned and enlisted personnel hereinafter specified.

2. The total number of commissioned officers and enlisted men may be approximately equal to, but shall not exceed, 1 commissioned officer and 16 enlisted men for each 400 animals in service; the veterinarians and assistant veterinarians of the Regular Army, National Guard, drafted into the Federal Service, and Officers' Reserve Corps in active

service, shall be considered as a part of the total commissioned personnel herein authorized.

3. The commissioned personnel shall consist of veterinarians and assistant veterinarians and the grades and the ratios in grades shall be as follows:

Seven veterinarians with rank of major to 20 veterinarians with rank of captain, to 36 veterinarians with rank of first lieutenant, to 37 assistant veterinarians with rank of second lieutenant.

In no case shall original appointments or promotions be made so as to make the ratio between any of the grades above that of second lieutenant to the grade next below it above the ratio specified.

4. The enlisted personnel shall consist of men of the grades indicated below and the proportions of these men shall not exceed those indicated. In each 200 enlisted men there may be 5 sergeants first class, 10 sergeants, 10 corporals, 40 farriers, 2 horseshoers, 1 saddler, 3 cooks, 43 privates first class, 86 privates.

5. The Surgeon General will submit recommendations to the Secretary of War for the commissioned and enlisted personnel now required for the organization authorized above, which, upon approval by the Secretary of War, shall be put into effect. The organization of the Veterinary Corps will be subsequently increased or decreased as the needs of the service require upon recommendations by the Surgeon General after they have been approved by the Secretary of War. * * *

A Veterinary Corps, National Army, having been provided, the principles and policies for its operation were provided in SR (Special Regulations) No. 70, 15 December 1917, Special Regulations Governing the Army Veterinary Service. This regulation contained the first comprehensive description of the administrative and functional organization of the Army Veterinary Service. Additional implementing instructions were contained in a series of circular letters which were promulgated by the Surgeon General's Office during World War I and thereafter until late in 1920. Special Regulations No. 70, supplemented by the Surgeon General's circular letters, provided administrative and technical guidance until supplanted by 52 numbered Army Regulations which were published in 1921–22. These Army Regulations, with minor changes from time to time, were in effect at the beginning of World War II.

After World War I, the wartime military establishment was replaced by a more permanent peacetime organization under the provisions of the act of 4 June 1920 which amended the National Defense Act of 1916 to the degree that a new law seemed to emerge. This act, as further amended or modified by the appropriation act of 30 June 1922, the act of 14 July 1932, and the act of 31 July 1935, markedly influenced the development of the Army Veterinary Corps. The effect of these acts will be discussed in their relation to the subject headings which follow.

ADMINISTRATION AND ORGANIZATION

When the National Defense Act of 1916 came into existence, there was no veterinary service organization above the regimental, camp, and depot level and no professional supervision or coordinating control over the separate local activities. The act did nothing to change this situation as it

contained but little above the specific provisions for forming a corps of commissioned officers within the Medical Department. The Surgeon General, in early 1917, invited certain civilian veterinarians to confer with him on planning the organization and expansion of a wartime veterinary service.[1] A special committee of the American Veterinary Medical Association submitted a recommendation to the Surgeon General's conference group for the organization of a veterinary service patterned after that of the British Army's veterinary service. The conference group accepted this proposal, and a recommendation was submitted to the War Department on 14 July 1917. This recommendation resulted in the publication of General Orders No. 130, 4 October 1917, which established the organization of the Veterinary Corps, National Army. Prior to the issuance of this general order, The Surgeon General, anticipating its publication, had replaced his original conference group with a veterinary advisory board of five prominent civilian veterinarians to formulate plans for the more detailed organization and administration of the veterinary service. The recommendations of this board resulted in the publication of SR 70 which, together with the Surgeon General's circular letters, provided administrative and technical direction until 1921.

After the appointment of a civilian veterinary advisory board, a Veterinary Division was established in the Surgeon General's Office in October 1917 when a number of the original veterinary advisers were commissioned in the Veterinary Corps, National Army, and were assigned to duty in the Veterinary Division. Under the directorship of Medical Corps officers from 1917 to 1922 and Veterinary Corps officers thereafter, the Veterinary Division continued through World War I and thereafter as the office at War Department level responsible for the operation of the Army Veterinary Service.

During World War I, practically all of the veterinary officers were assigned to combat divisions, remount depots, and other units within the Zone of Interior which were exempt from control of the six departments within the United States. For this reason, veterinary officers were not assigned to department headquarters. The Surgeon General's Office exercised direct coordination and supervision of the veterinary service at the many exempted installations. This was accomplished through five senior veterinary officer general inspectors who traveled from camp to camp within each of five established geographic areas. These inspectors were of great value in advising the many young and inexperienced veterinary officers and

[1] Merillat and Campbell (Veterinary Military History of the United States, 1935, p. 491) indicated that the conference members included Maj. Gen. W. C. Gorgas, The Surgeon General; Maj. C. G. Furbush, MC; Maj. G. E. Griffin, VC; Lt. A. L. Mason, VC; and the following civilian veterinarians: V. A. Moore, dean of the New York State Veterinary College, Cornell University; C. J. Marshall, of the School of Veterinary Medicine, University of Pennsylvania; D. S. White, dean of the College of Veterinary Medicine, Ohio State University; J. R. Mohler, assistant or acting chief of the Bureau of Animal Industry, U.S. Department of Agriculture; and C. E. Cotton, president, American Veterinary Medical Association. Of these, Marshall, White, and Cotton were commissioned into the Veterinary Corps, National Army, on 3 October 1917.

in keeping The Surgeon General informed on all matters pertaining to the newly organized service. Various required reports were submitted directly to The Surgeon General from all exempted stations.

After World War I, more and more of the formerly exempted units and installations were placed under the control of the departments in line with a general policy of decentralization. With this change, the need for traveling general inspectors no longer existed, and the assignment of a veterinary officer to the office of each department surgeon to supervise the Veterinary Service within the area became desirable. The first such department veterinarian was assigned in 1919; others were assigned later. The military departments were discontinued in 1920 but were replaced by nine numerically designated corps areas. Thus, the former department veterinarian became a corps area veterinarian. His duties were first completely outlined in Army Regulations in 1920. The number of corps area headquarters to which a veterinary officer was assigned varied from year to year. After mid-1938, each corps area had an assigned corps area veterinarian, and the onset of World War II saw veterinary activities well coordinated within the corps area commands.

Reference to the responsibilities of the Army Veterinary Service when outside of the Zone of Interior and to the office of chief veterinarian in an expeditionary force was first contained in SR 70. At variance with the more commonly accepted concept of subordination to the chief surgeon, this SR 70 provided that the chief veterinarian report direct to the commander in chief. Under this concept, the Chief Veterinarian, American Expeditionary Forces in France, was assigned to the office of the force's Chief Quartermaster where he became veterinary technical adviser to the theater's remount service rather than a central administrator of the veterinary service. The veterinary service was in fact under the direct control of the Quartermaster Corps instead of the Medical Department. This arrangement was wholly unsatisfactory from every standpoint, but it was not corrected until August 1918 when the Army Veterinary Service was finally placed under Medical Department control and the Chief Veterinarian was assigned to the Chief Surgeon's Office.

Department veterinarians were assigned to the Hawaiian, Philippine, and Panama Canal Departments in 1918. From the office of the department surgeon, they supervised and coordinated the veterinary services in these departments in the same manner as the veterinary service was supervised by department or corps area veterinarians in the Zone of Interior.

PERSONNEL

Regular Army Officers

It was not until the spring of 1917 that anything was materially accomplished to provide a commissioned veterinary corps as authorized by the

National Defense Act of 1916. Before that time, a board of officers, composed of three Medical Corps officers and two veterinarians, was appointed to examine the physical and professional qualifications of veterinarians then in Cavalry, Field Artillery, and Quartermaster Corps for appointment into the Veterinary Corps, Regular Army. Later, the examinations were extended to civilian veterinarians. By 6 April 1917, 58 officers with previous military service had been commissioned. By July 1918, the corps had been filled to its authorized strength of 118. The authorization remained at this level until, under the 1920 amendments to the National Defense Act, it was increased to 175. The vacancies thus created were partially filled (to a total strength of 163 by December 1920) by integration into the Regular Army of selected Veterinary Reserve officers who had seen active military service during World War I. The appropriation act of 30 June 1922 provided that, effective 1 January 1923, pay would be restricted to 126 regular Veterinary Corps officers. The cutback from the then actual strength of 158 to the authorization of 126 was accomplished in part by normal attrition, but the appointments of 22 officers were forcibly terminated by "pink ticket." The National Defense Act was never amended to reflect the reduced authorization, but the restriction was repeated in successive appropriation acts so that the authorization and actual strength was still 126 at the beginning of World War II. Subsequent to the integration program noted above, vacancies within the authorized strength were filled only in the lowest grade by appointment from an eligible list established after examination of candidates for appointment.

Temporary promotions of Regular Army Veterinary Corps officers were made under authority of the provisions for the National Army during World War I. Permanent promotions were made upon completion of a fixed number of years of service and successful completion of physical and professional examinations (table 1).

TABLE 1.—*Years of service required for promotion of Veterinary Corps, Regular Army, officers, as described by law, 1916–40*

Rank	Act of 3 June 1916	Act of 4 June 1920	Act of 31 July 1935
Second lieutenant	Original appointment.	Original appointment.	----------
To first lieutenant	After 5 years	After 3 years	Original appointment.
To captain	After 15 years	After 7 years	After 3 years.
To major	After 20 years	After 14 years	After 12 years.
To lieutenant colonel	Not authorized	After 20 years	After 20 years.
To colonel	----------	After 26 years	After 26 years.

Reserve Officers

With the onset of World War I, it was evident that the demand for veterinary officers would have to be met by the appointment of veterinarians in the Veterinary Section, Officers' Reserve Corps, under authority of the Officers' Reserve Corps section of the National Defense Act of 1916. In the spring of 1917, The Surgeon General authorized the deans of veterinary colleges and some few leading practitioners to conduct professional examination of veterinarians who might apply for appointment as second lieutenants, Veterinary Officers' Reserve Corps. After the fall of 1917, candidates for appointment were examined by Medical Department boards of officers at Army camps. During the wartime period, a total of 1,596 veterinarians were commissioned in the Reserve and served on active duty. Like the veterinary officers of the Regular Army and those of the National Guard, Veterinary Corps Reserve officers were integrated into the National Army on 4 October 1917, under the provisions of General Orders No. 130. On 7 August 1918, all officers were transferred into the U.S. Army (*2*). This latter personnel action was interpreted as one of outright discharge from the Officers' Reserve Corps, so the demobilization of the Army resulted in the unconditional release of all former Reserve Corps veterinary officers from further military obligation (*1*). The Veterinary Officers' Reserve Corps then comprised only the few who had not been called to active duty and those who had been discharged prior to 7 August 1918.

The Veterinary Section of the Officers' Reserve Corps was reestablished on 1 January 1919 and by the end of that year had 92 members. Many former veterinary officers who had rendered satisfactory service during the war were reappointed in the Reserve in the grades held when relieved from active duty. Later, the majority of new appointments were veterinarians who had completed their training under the Reserve Officers' Training Corps program which was started in four veterinary colleges in 1920. The number in the Reserve, which from 1925 to 1938 averaged about 1,000, had increased to over 1,500 in 1940, providing an adequate source of supply of veterinary officers when needed during World War II. After mid-1930, over 100 Reserve Corps veterinary officers were, on their own application, ordered to active duty with the CCC (Civilian Conservation Corps) for which certain administrative and supply functions, including the inspection of food by veterinary officers, were being performed by the Army. These officers were relieved from active military duty in late 1939, but many were reemployed as civilian employees of the CCC to perform meat inspection duties.

National Guard Officers

During World War I, 74 officers with the National Guard were inducted into Federal service. These, like all other veterinary officers, were

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integrated into the National Army on 4 October 1917 and into the U.S. Army on 7 August 1918. These were discharged from military service following the war. Later, veterinarians again became a part of the National Guard, and, by 30 June 1941, 34 National Guard veterinary officers were in active Federal service. Also included among the 2,313 veterinary officers who saw active military service during World War I were 17 originally appointed in the National Army, 207 appointed in the U.S. Army after 7 August 1918, and 2 retired Regular Army Veterinary Corps officers. The peak active strength was 2,234; this peak was reached on 30 November 1918. The peak active strength in Europe during World War I was 890 officers on 28 December 1918.

Enlisted Men

The National Defense Act of 1916 did not provide for veterinary enlisted personnel. The first provision for enlisted men was contained in General Orders No. 130, which established a National Army Veterinary Corps consisting of commissioned and enlisted personnel. It provided for a strength not to exceed 16 veterinary enlisted men for each 400 animals in the Army. The number of enlisted men rapidly increased, and a wartime peak of 18,007 men was reached on 31 October 1918. About two of every three enlisted men saw oversea service. Demobilization after World War I saw the rapid release of wartime or Selective Service enlisted men from the Veterinary Service. During the spring of 1919, the War Department authorized enlistment or reenlistment with the Medical Department, Regular Army, for immediate assignment to duty with the Veterinary Corps. War Department General Orders No. 127, 17 November 1919, augmented the Medical Department enlisted strength by 1,500 personnel spaces with the expressed contingency that personnel "* * * will be enlisted in the Medical Department but will be assigned to duty with the Veterinary Corps." By 30 June 1920, there were 965 enlisted men, "Medical Department (Veterinary Service)," on duty. Under the 1920 amendments to the National Defense Act, a reduction in overall Medical Department enlisted personnel authorization was effected, and this was reflected in the decrease of the veterinary suballotment to 800 in 1922. Further reduction in authorization followed, and the average authorization through the years to 1940 was approximately 600, while the average actual strength was very close to this figure. Both the authorized and actual enlisted strengths were generally below that necessary for operation of a fully efficient veterinary service.

TRAINING AND INSTRUCTIONAL SERVICES

Training in World War I

The most discouraging situation in the beginning wartime expansion of the Army Veterinary Service was its inadequate training. Practically all veterinary officers were lacking in military experience, and there was a very

serious shortage of trained men to help the untrained, as there was no corps of commissioned officers before 1917. Training of individual officers and enlisted men was necessary as was also the training of units. Many officers were of necessity self-trained. On-the-job training was conducted in unit schools at regimental, depot, division, and camp level wherever possible, but the quality of training was too often poor due to lack of trained instructors. Most of the few experienced officers who were available as instructors were assigned to the Medical Department special training facilities or schools listed in table 2.

TABLE 2.—*Veterinary personnel enrolled in training courses and schools in World War I*

Training facility	Date opened	Date closed	Number enrolled	
			Officers	Enlisted
Veterinary Training School (section, Medical Officers' Training Camp, Camp Greenleaf, Ga	15 Feb. 1918	18 Dec. 1918	738	1, 074
Veterinary Section, Medical Officers' Training Camp, Fort Riley, Kans	25 Feb. 1918	— Sept. 1918		527
Veterinary Training School, Camp Lee, Va	— June 1918	15 Feb. 1919	393	7, 968
Meat and Dairy Hygiene and Forage Inspection Course, General Supply Depot, Chicago, Ill	27 Aug. 1917	(1)	132	217
Course, Veterinary Laboratory, Philadelphia, Pa	— Jan. 1918	(2)	6	
Total			1, 269	9, 786

[1] The course was discontinued, and in its place, on 25 June 1920, the School of Military Meat and Dairy Hygiene and Forage Inspection (later renamed the Army Veterinary School) was established.

[2] The Veterinary Laboratory was transferred during March 1920 to Washington, D.C.

Only about one-half of the Veterinary Corps officers serving during World War I received military veterinary training in Medical Department or other training installations giving formal instruction. Approximately the same proportion of enlisted men received this type of training. The school at Camp Lee, Va., was concerned principally with the organization and unit training of 36 hospital and replacement units for the American Expeditionary Forces in France; 6,500 of its students were sent overseas with organizations. The school at the General Supply Depot in Chicago supplied specialized training in food and forage inspection.

Training After World War I

The end of World War I brought the early closing of all of the wartime veterinary training schools or facilities other than the Course in Meat

and Dairy Hygiene and Forage Inspection in Chicago and the veterinary laboratory course in Philadelphia. The latter was transferred to Washington, D.C., in 1920 and later became a part of the Army Veterinary School.

The course of instruction at the Chicago General Supply Depot was designated as the Veterinary School of Meat and Dairy Hygiene and Forage Inspection in 1920, as an Army special service school under the Medical Department for the training of veterinary officers and enlisted personnel (*3, 4*). The school was reorganized in early 1922 and was renamed the Army Veterinary School. Pursuant to War Department authorization of 7 July 1923, the school was transferred to Washington, D.C., where it was integrated into the organization of the Army Medical Center (*5*). The school conducted the basic course for Veterinary Corps officers and the technicians' course for enlisted personnel throughout the peacetime period. The Army Veterinary School graduated 162 officers and 196 enlisted men between 1920 and 1941.

In 1920, the Medical Field Service School for the field training of Medical Department personnel was established at Carlisle Barracks, Pa. Groups of Veterinary Corps officers first regularly attended this school in 1923; a total of 113 Veterinary Corps officers had graduated before 1941.

The following tabulation shows the number of Veterinary Corps officers graduating from Army schools, other than Medical Department schools, during the peacetime period.

Army War College	1
Command and General Staff School	2
The Cavalry School	12
The Chemical Warfare School	8
Quartermaster Corps Subsistence School	3
Total	26

During the same period, 15 Veterinary Corps officers completed courses in civilian educational institutions.

Some of the most important peacetime training was the training conducted in veterinary ROTC (Reserve Officers' Training Corps) units in four veterinary colleges between 1920 and 1935. During this period, nearly 500 veterinary ROTC students received their professional degrees and were commissioned as second lieutenants in the veterinary section of the Officers' Reserve Corps.

EQUIPMENT AND SUPPLIES

Shortly after becoming a part of the Medical Department, the Army Veterinary Service was equipped and supplied in common with the Medical and Dental Corps. However, at the beginning of World War I, there was practically no veterinary equipment or supply on hand. The relatively small holding of veterinary supplies in the hands of the Quartermaster Corps was transferred to the Medical Department, and veterinarians who were then

entering active military service were asked to bring their equipment with them for purchase by the Army. In addition, the Secretary of War granted authority to civilian animal humane organizations to furnish gift donations so that Army animals would not suffer from the lack of veterinary equipment and supplies.

Donations of considerable amounts of equipment and supplies were made by the Blue Cross Society, sponsored by the American Red Cross, and by the Red Star Animal Relief, organized as a part of the American Humane Association. The appropriations act of 12 May 1917 provided funds for the Medical Department expressly "for the purchase of veterinary supplies," but it was late 1917 before nearly adequate stocks were available in the Medical Supply Depot, St. Louis, Mo. Supply tables revised in early 1918 provided new wallets, chests, and unit assemblies, largely patterned after British Army equipment, for veterinary detachments, hospitals, and other field units. Before 22 April 1918, nearly $4½ million had been expended for veterinary equipment and supplies, which by that time were on hand in adequate amounts.

After World War I, the Medical Department supply tables were subjected to various revisions, but the classification of veterinary supplies remained more or less the same after 1928. During the peacetime period, the Medical Field Service School and the Army Veterinary School, working with the Veterinary Division of the Surgeon General's Office and selected test units in the field, did much to improve and develop the veterinary equipment and supply, particularly the various assemblies for field use.

References

1. The Medical Department of the United States Army in the World War. The Surgeon General's Office. Washington: Government Printing Office, 1923, vol. I.

2. War Department General Orders No. 73, 7 Aug. 1918.

3. Letter, The Surgeon General to The Adjutant General, 10 May 1920, subject: Special Service School for Instruction of Veterinary Personnel in Meat, Dairy, and Forage Inspection Duties.

4. Letter, The Adjutant General to Deputy Officer, General Supply Depot, Chicago, Ill., 25 June 1920, subject: Veterinary School of Meat and Dairy Hygiene.

5. Letter, The Surgeon General to The Adjutant General, 22 June 1923, subject: Transfer of Army Veterinary School From Chicago to Washington, D.C., 1st indorsement thereto.

CHAPTER III

Mission and Administration

With an understanding of the beginnings in military veterinary medicine and of developments in the Army Veterinary Service since its formation pursuant to the National Defense Act of 3 June 1916, the objectives and accomplishments of the 2,116 veterinarians who served in the Veterinary Corps of the Army during World War II become more real. At this point, it must be emphasized that the wartime expansion of the Army Veterinary Service was generally orderly, even showing increasing efficiency in answer, or partial response, to the seemingly imponderable problems and questions which then arose. This was not true during World War I when the newly created Army Veterinary Service was necessarily expanded even before its fundamental principles or nuclei were fully developed. The onset of World War II found the Army Veterinary Service with a tested definition of its mission and responsibilities and with a central administrative agency in operation—two factors which were essential to orderly expansion. Their existence was a credit to the Veterinary Corps which had actively continued and repeatedly reevaluated them once they had been developed in the years past.

MISSION AND RESPONSIBILITIES

The mission and responsibilities of the Army Veterinary Service in World War II were generally no different from those which were defined soon after the Veterinary Corps was created and was made a component of the Medical Department. Only the words were changed after World War I, and time had brought about some refinements in these definitions as well as a more firm establishment of the relationship of the corps in Medical Department organization. Special Regulations No. 70, 15 December 1917, described the objects of the Veterinary Corps as follows: "* * * to protect the health and preserve the efficiency of the animals of the Army," and "* * * also provide for the inspection of meat-producing animals before and after slaughter and of dressed carcasses; and for the inspection of dairy herds supplying milk to the Army." Parts of the definition originated with the National Defense Act of 3 June 1916, which had created the Veterinary Corps to include veterinarians, veterinarians with mounted units, veterinary inspectors of horses and mules, and veterinary inspectors of meats. On 25 January 1922, AR (Army Regulations) No. 40–2005, Medical Department—Veterinary Service, General Provisions, provided: "The Veterinary Service as a part of the Medical Department * * * is charged in peace and war with duties falling under two definite heads: First, those in connection with the animals of the Army; second, those concerned with the food supplies of

troops that are of animal origin." This was restated in the 15 September 1942 edition of the same regulation and was continued throughout the remaining period of World War II.

Animal Health

With reference to animals, the Army Veterinary Service was responsible for (1) investigating animal hygiene and sanitary conditions and making recommendations with respect thereto; (2) advising on those methods of animal management concerned with animal health and efficiency; (3) instructing military personnel on military animal sanitation and management and on horseshoeing; (4) examining animal feeds and forage when procured, in storage, and at issue; (5) evacuating and caring for sick and wounded animals; (6) physically examining animals; (7) managing and controlling veterinary hospitals and all other veterinary units; (8) investigating and controlling those diseases of animals which were known or suspected to be transmissible to the human being; and (9) controlling, training, instructing, and assigning to duty of the commissioned and enlisted personnel of the Medical Department who belonged to the Veterinary Service. These responsibilities expressly meant that the Army Veterinary Service in World War II—

1. Applied the principles of veterinary sanitary science to maintain animals in a correct environment with regard to their shelter, restraint, handling, feeds and feeding, grooming, work and exercise, shoeing, clothing, and equipment with the purpose of eliminating, so far as practicable, the causes of physical inefficiency.

2. Initiated suitable measures for the control of communicable diseases.

3. Reduced animal losses and inefficiency by the prompt discovery of the sick and wounded, their separation from the well, their evacuation, their segregation in veterinary hospitals, and the application of curative measures.

4. Physically examined animals prior to purchase and at other times with a view to insuring the acquisition of only serviceably sound animals and the prompt and economical disposal of the unsound.

5. Reduced the incidence among military personnel of diseases transmissible by animals by the application of veterinary public health measures applicable to military animals and civilian animals in the vicinity of troop areas.

Food Inspection

Regarding food supplies, the Army Veterinary Service in World War II was responsible for (1) the procurement and surveillance inspections of meats, meat foods, milk and dairy products used by the Army; (2) the determination, by inspection or other means, of the sanitary condition of food establishments, warehouses, and shipping conveyances and of the methods used in manufacturing, storing, shipping, and handling food products; (3) the

submission of recommendations with respect to the food supply; and (4) the instruction of veterinary food inspection personnel. These responsibilities meant that the Army Veterinary Service—

1. Applied the principles of sanitary control over the condition and methods used in the production or manufacture, shipping, storage, issue, and other handling of food products, including food establishments, warehouses, freezing plants, refrigerators, railroad cars, ships, and airplanes as well as milk herds and dairies.

2. Reduced or eliminated the hazards to troop health that existed in diseased, contaminated, or deteriorated food supplies, by sanitary inspections and reinspections of food products.

3. Assured that the quantity and the sanitary, nutritive, and grade qualities of food products were delivered by contractors in accordance with the requirements of specifications and purchase instruments.

By the operations listed, the veterinary food inspection service assured that the food supplies of animal origin which were purchased by the Army were produced in establishments maintaining acceptable standards of sanitation, that they were sound and of the required quality when procured, and that the food products at time of issue to troops were wholesome and fit for human consumption. The operations also were important in the conservation of the Army food stockpiles against unnecessary deterioration or outright losses due to spoilage.

Relation With Medical Service

In the conduct of this service with Army animals and the inspection of the Army food supply, the Veterinary Service was administered, under the direction of The Surgeon General, by a Veterinary Corps officer who was selected by The Surgeon General and assigned to duty in his office as chief of the Veterinary Division. Below the level of the Surgeon General's Office in the organizational structure of the Army, these services in a theater of operations, territorial department, corps area (later service command), camp, airbase, or other station, or in a field army, army corps, division, air force, or other unit were the responsibility of, and were conducted by, the senior Veterinary Corps officer, whose official designation was "veterinarian." His basic title was, for example, chief veterinarian, department veterinarian, corps area (or service command) veterinarian, station veterinarian, depot veterinarian, base veterinarian, port veterinarian, army veterinarian, corps veterinarian, division veterinarian, brigade veterinarian, or regimental veterinarian. At these levels of the military organizational structure, the dual nature of responsibilities of the Army Veterinary Service—concerning animals on one hand and troops on the other—involved a close and definite relationship in Medical Department organization and administration. The veterinary service with animals, and the general medical service with troops proceeded along parallel lines. Their problems of sanitation, preventive

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medicine, control of preventable diseases, professional care and treatment of the sick and injured, and the administration of hospitals were precisely analogous, as were the procedures prescribed and the means provided for their solution.

Staff Duties

While appropriately united in one department and administered under one head—The Surgeon General—the veterinary and medical services were, in a technical sense, separate except as they met on the common ground of an animal disease which might possibly be communicable to man. On the other hand, the veterinary service with troops or operations concerned with the examination of the food supply was a matter of sanitation and, thus, a direct extension of the sanitary service of the Medical Department, which was charged with responsibility in all matters concerning the protection of the health of troops. Proper coordination of these activities of this service branch of the Army was assured only when there was but one representative of the Medical Department on the staff of the commanding officer. Since all considerations involving the health of troops were paramount, such staff duty logically devolved upon the senior Medical Corps officer present with the command. This principle, however, was construed as placing the veterinary officer of the command as a subordinate of, or assistant to, the surgeon only in a staff capacity. In his staff relations, the veterinarian furnished the surgeon with such technical information as was necessary in properly representing the affairs of the Medical Department. In addition to their staff functions as surgeon and veterinarian, respectively, the medical officer commanded the medical detachment and the veterinary officer commanded the veterinary detachment, and in such command capacity each was directly responsible only to the commanding officer. Accordingly, at posts, camps, and stations, such matters as reports and returns relating exclusively to the veterinary detachment or to veterinary technical operations not involving the health of troops were not transmitted by the veterinarian through the surgeon.

In the absence of a veterinary officer, the ordinary staff duties of the surgeon were expanded to include direct responsibility for the command's veterinary service, including its administration. Where there were no veterinary personnel—officer or enlisted—the surgeon represented the Medical Department in matters pertaining to the Veterinary Service, utilized such facilities as were at his disposal, and kept the commanding officer advised as to the veterinary requirements. To the extent that veterinary personnel were available, these situations were avoided by the assignment of specially trained and selected veterinary noncommissioned officers to the surgeon's offices of commands, by the authorization to employ civilian veterinarians, or by the naming of an attending veterinarian who performed at such stations the same duties as were required at his regularly assigned station.

Professional Duties

In addition to the duties and responsibilities devolving upon him as a doctor of veterinary medicine, the Veterinary Corps officer inherited certain duties and responsibilities which were commensurate with his commissioning as an Army officer and were proper to the performance of the mission assigned to the Army Veterinary Service. These may be classified as professional, advisory, and administrative. The professional duties were typical of those which were performed by the veterinary surgeons and employed veterinarians who saw service with Cavalry, Field Artillery, and the Subsistence and Quartermaster's Department before 1916; they had no advisory duties and no personnel to assist them. The advisory duties may be compared with the activities of professional consultants or civilian experts, but only the Veterinary Corps officer could perform all three classes of duties and be responsible for them, including that of command. The duties and responsibilities, in general, of the veterinary officers when acting in a professional capacity were to—

1. Practice preventive veterinary medicine by recommending suitable measures for the prevention and control of animal diseases and injury, including physical examinations of animals.

2. Provide treatment and hospitalization for animals analogous to that provided to troops by medical and dental officers.

3. Conduct sanitary inspections of establishments producing, storing, issuing, or otherwise handling foods of animal origin which were used by the Army and to conduct procurement and surveillance food products inspections.

Advisory Duties

When acting in an advisory capacity, or as a staff veterinary officer, his duties were—

1. To keep informed of existing conditions having any bearing upon the health and physical efficiency of the animals of the command and, especially in a moving command, to anticipate the occurrence of such conditions.

2. To keep informed of conditions affecting foods of animal origin which might have a bearing upon the health of troops.

3. To transmit to the commanding officer such of this information having a bearing upon the military administration and to submit appropriate recommendations.

4. To transmit to the surgeon such of this information having any bearing upon the health of troops.

5. To make prescribed reports and returns and to take appropriate action on reports and returns received from subordinates.

6. To perform such other duties as directed by superior authority.

These advisory duties did not mean that the veterinary officer took corrective action to minimize a defect—that being the direct responsibility of

the commanding officer. If, however, the commanding officer expressly authorized the Veterinary Corps officer to give orders in his name for the correction of such defects, then the duties and responsibilities of the latter were correspondingly increased. In advising, it became necessary for the veterinary officer to remember that when any veterinary necessity of the moment conflicted with a purely military necessity, the former was ranked secondary in importance, unless the veterinary officer was convinced that the responsible military authority was not aware of the far-reaching results from a veterinary point of view, in which case, it was necessary to again present the matter to the military authority, who alone possessed all of the facts bearing on the decision of action for which he alone was responsible.

Administrative Duties

In his administrative duties, the Veterinary Corps officer was directly responsible for the condition and efficiency of the veterinary service of his command—this being comparable to the duties of administrative officers of the line units of the Army. More specifically, the veterinary officer was responsible for—

1. The training, discipline, efficiency, and assignment to duty of the personnel which he commanded and the supervision of the internal economy of the veterinary organization or unit.

2. The maintenance of equipment in proper condition by requisitioning the needed supplies and by properly caring for the property on hand.

3. The keeping of prescribed reports and the making of prescribed reports and returns.

4. The performance of such other duties as were required by superior military authority, such as the conduct of veterinary instructional services in horseshoeing schools.

Changes in Emphasis

The mission and responsibilities of the Veterinary Service during World War II were not materially different from those of World War I. However, during the war, there were some changes in the emphasis on parts of the mission and responsibilities and in the way that they were fulfilled. For example, World War II saw the definition of Army animals, so far as the Army Veterinary Service was concerned, expanded to mean not only horses and mules but also Army dogs and signal pigeons and even laboratory animals. However, this change in meaning did not add to, or detract from, the mission of the Army Veterinary Service to protect and preserve animal efficiency; nor did changes in animal strength have an influence on this mission. Similarly, the newer threats to troop health which came with leptospirosis and rabies of dogs or with psittacosis and salmonellosis common to pigeons—diseases which are infectious for the human being—had little influence on the basic concept of the mission of veterinary public health and its relationship

in the Medical Department. In regard to the Army food supply, which was many times the volume of any past period, the increasing emphasis on centralizing food procurement, on conducting inspections at food establishments, and on conserving Army stockpiles by surveillance inspections involved changes and expansion of the administrative organization of the Army Veterinary Service in the Zone of Interior and theaters overseas in lieu of amendment to the statement of mission and responsibilities.

Tables 3 and 4 show the number of animals treated, and tables 5 and 6 show the amounts of foods of animal origin that were inspected. These tables present a picture of the magnitude of the mission and responsibilities of the Veterinary Service during World War II.

TABLE 3.—*Veterinary service to horses and mules in the U.S. Army, by year, 1941–46*

[Rate expressed as number per annum per 1,000 average strength]

Year	Average strength	Admissions		Deaths		Days of treatment
		Number	Rate	Number	Rate	
1941	46, 520	44, 696	960. 8	2, 528	54. 3	918, 553
1942	49, 701	33, 424	672. 5	2, 181	43. 9	706, 794
1943	56, 287	31, 784	564. 7	2, 987	53. 1	853, 481
1944	43, 334	25, 471	587. 8	2, 364	54. 6	610, 916
1945	35, 200	19, 939	566. 4	2, 856	81. 1	486, 652
1946	7, 717	3, 119	404. 2	275	35. 6	59, 210

Source: Reports, Veterinary Division, Surgeon General's Office, for the annual reports of The Surgeon General, 1942–45. [Official record.]

ADMINISTRATION

Surgeon General's Office

The Army Veterinary Service was administered as a component of the Medical Department under the direction of The Surgeon General by a Veterinary Corps officer who was selected by The Surgeon General and assigned to duty as chief of the Veterinary Division of his office. Pursuant to the regulations of the Army, his title was that of chief of the Veterinary Division and not chief of the Veterinary Corps. His recommendations and actions were first subjected to review and approval by The Surgeon General, but on certain matters of primary veterinary concern these recommendations were accepted so regularly that, from a practical viewpoint, the chief exercised a varying degree of direct control over the Veterinary Corps.

In 1939, the chief of the Veterinary Division, then a veterinary officer with the rank of lieutenant colonel, was advising The Surgeon General directly on the administration of the Army Veterinary Service. The Veter-

TABLE 4.—*Veterinary service to Army horses and mules, in the*

[Rate expressed as number per annum

Year	Average strength	Total						Disease	
		Admissions		Deaths		Days of treatment (Number)	Non-effective rate	Admissions	
		Number	Rate	Number	Rate			Number	Rate
	HORSES								
1941	39, 703	40, 397	1, 017. 5	2, 291	57. 7	835, 935	57. 7	18, 570	467. 7
1942	41, 297	28, 636	693. 4	1, 916	46. 4	616, 505	40. 7	10, 977	265. 8
1943	40, 917	24, 789	605. 8	2, 631	64. 3	588, 838	38. 9	10, 845	265. 0
1944	22, 264	13, 615	611. 5	1, 625	73. 0	317, 520	39. 0	6, 468	290. 5
1945	13, 280	11, 157	840. 1	1, 932	145. 5	247, 277	51. 0	5, 337	401. 9
	MULES								
1941	6, 817	4, 299	630. 6	237	34. 8	82, 618	33. 2	1, 302	191. 0
1942	8, 404	4, 788	569. 7	265	31. 5	90, 289	29. 4	1, 899	226. 0
1943	15, 370	6, 995	455. 1	356	23. 2	164, 643	29. 3	2, 801	182. 2
1944	21, 070	11, 856	562. 7	739	35. 1	293, 396	38. 1	5, 152	244. 5
1945	21, 920	8, 782	400. 6	924	42. 2	239, 375	29. 9	4, 122	188. 1

Source: Reports, Veterinary Division, Surgeon General's Office, for annual reports of The Surgeon General, 1941–45.

inary Division at the time included one other veterinary officer and four civilian employees (table 7). During the pre-World War II emergency period, the veterinary personnel strength was augmented by three officers—the first increase in their numbers since mid-1925. With this change, the peacetime Veterinary Division was reorganized to include, as of 7 December 1941, the chief of the division, the assistant chief, the officers in charge of the animal service and the meat and dairy hygiene subdivisions, and the liaison officer to the U.S. Department of Agriculture and the Quartermaster General's Office. A few months later, this internal arrangement was replaced by one more or less contemplated in the mobilization plans which had been developed in the preceding peacetime years. The Veterinary Division was divided into four subdivisions: (1) Personnel, Statistical and Training; (2) Inspection; (3) Animal Service; and (4) Meat and Dairy Hygiene. Probably the most important part of the change at this time was that mobilization planning had provided for the rank of the chief of the division to be that of brigadier general. Thus, on 17 March 1942, this officer, Col. Raymond A. Kelser, VC, was advised by The Adjutant General of his temporary appointment as brigadier general in the Army of the United States (with date of rank, 9 March 1941) (*1*). He was the first in the history of the

U.S. Army, by disease and external cause (or injury), 1941–45

per 1,000 average animal strength]

Disease—Continued				External cause (or injury)					
Deaths		Days of treatment (Number)	Non-effective rate	Admissions		Deaths		Days of treatment (Number)	Non-effective rate
Number	Rate			Number	Rate	Number	Rate		
HORSES—Continued									
1, 762	44. 4	427, 046	29. 5	21, 827	549. 8	529	13. 3	408, 889	28. 2
1, 430	34. 6	235, 158	15. 5	17, 659	427. 6	486	11. 8	381, 347	25. 2
1, 927	47. 1	288, 314	19. 0	13, 944	340. 8	704	17. 2	300, 524	19. 8
1, 344	60. 4	157, 885	19. 4	7, 147	321. 0	281	12. 6	159, 635	19. 6
1, 618	121. 8	116, 661	24. 1	5, 820	438. 3	314	23. 6	130, 616	27. 0
MULES—Continued									
167	24. 5	31, 828	12. 8	2, 997	439. 6	70	10. 3	50, 790	20. 4
194	23. 1	39, 043	12. 7	2, 889	343. 8	71	8. 5	51, 246	16. 7
270	17. 6	70, 778	12. 6	4, 194	279. 9	86	5. 6	93, 865	16. 7
561	26. 6	135, 526	17. 6	6, 704	318. 2	178	8. 5	157, 070	20. 5
679	31. 0	116, 130	14. 5	4, 660	212. 6	245	11. 2	123, 245	15. 4

[Official record.]

Army Veterinary Service to attain general officer rank. The other parts of the mobilization plans were not as rigidly carried out, though a Veterinary Corps officer was assigned to the Personnel Division (for the period, 9 February 1943–11 April 1944), and, in lieu of the veterinary subdivision in the planned Inspection Division, the position of traveling veterinary consultants was established.

On 26 March 1942, the Veterinary Division was elevated to the status of a "service" within the organizational structure of the Surgeon General's Office and was internally organized to include the director of service and three divisions (each with three subdivisions).

War Department Reorganization

In March 1942, The Surgeon General lost his place in the War Department organization structure of direct accessibility to the Chief of Staff and War Department General Staff (*2*). In the reorganization of the War Department, many of its operative functions in the Zone of Interior were then consolidated and delegated to three new major commands: the Army Ground Forces, the Army Air Forces, and the Army Service Forces (origi-

TABLE 5.—*Inspections of foods of animal origin, procured, handled, and issued by the U.S. Army Veterinary Service, by year, 1941–46*

Year	Grand total	Procurement inspections					
		Total		Prior to purchase		On delivery at purchase	
		Passed	Rejected	Passed	Rejected	Passed	Rejected
		Millions of pounds	*Millions of pounds*	*Millions of pounds*	*Millions of pounds*	*Millions of pounds*	*Millions of pounds*
1941	2, 715. 71	1, 292. 38	58. 41	315. 34	34. 57	977. 04	23. 84
1942	11, 004. 71	4, 296. 24	242. 33	1, 318. 49	213. 05	2, 977. 75	29. 28
1943	25, 055. 21	9, 714. 47	307. 96	3, 983. 69	273. 24	5, 730. 78	34. 72
1944	47, 028. 41	13, 522. 40	374. 20	5, 674. 10	307. 41	7, 848. 31	66. 78
1945	55, 583. 92	13, 885. 78	246. 35	5, 861. 00	197. 50	8, 024. 83	48. 85
1946	9, 680. 26	1, 873. 11	42. 02	801. 71	37. 22	1, 071. 40	4. 80

Year	Surveillance inspections					
	Total		On any receipt except purchase		Prior to shipment	
	Passed	Rejected	Passed	Rejected	Passed	Rejected
	Millions of pounds	*Millions of pounds*	*Millions of pounds*	*Millions of pounds*	*Millions of pounds*	*Millions of pounds*
1941	1, 364. 44	0. 49	152. 42	0. 21	404. 99	0. 22
1942	6, 962. 77	3. 36	1, 897. 38	1. 30	2, 579. 32	1. 82
1943	15, 015. 30	17. 49	5, 133. 21	4. 64	5, 883. 88	2. 21
1944	33, 091. 65	40. 17	13, 685. 48	12. 54	14, 064. 54	. 85
1945	41, 411. 26	40. 53	17, 375. 57	17. 12	17, 750. 28	. 78
1946	7, 749. 95	15. 17	2, 598. 32	5. 32	2, 812. 19	. 37

Year	Surveillance inspections				Post mortem inspections of—			
	At issue to troops		In storage		Animals (excluding poultry)		Poultry	
	Passed	Rejected	Passed	Rejected	Passed	Rejected	Passed	Rejected
	Millions of pounds	*Millions of pounds*	*Millions of pounds*	*Millions of pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*
1941	807. 03	0. 06	(1)	(1)	4, 313	124	298, 764	23, 255
1942	1, 986. 07	. 25	(1)	(1)	2, 479	162	192, 112	12, 302
1943	3, 920. 50	1. 86	77. 70	8. 77	70, 308	5, 764	5, 755, 566	1, 244, 127
1944	5, 206. 55	3. 04	135. 09	23. 73	172, 364	9, 181	5, 947, 053	219, 912
1945	6, 052. 90	4. 90	232. 51	17. 72	329, 369	4, 621	4, 620, 505	286, 668
1946	2, 151. 38	4. 27	188. 06	5. 21	9, 425	1, 064	75, 159	2, 454

[1] For 1941 and 1942, these surveillance inspections, on inspection prior to shipment and inspection in storage, were merged in the so-called inspection in storage and at time of shipment.

Source: Reports, Veterinary Division, Surgeon General's Office, for the annual reports of The Surgeon General, 1942–46. [Official record.]

TABLE 6.—*Rejections of foods of animal origin before and following U.S. Army procurement, by year and by cause, 1941–46* [1]

Year	Total	Procurement inspections				Surveillance inspections	
		Cause for rejection		Computed procurement inspections [4]	Rejection because insanitary or unsound [5]	Food insanitary or unsound [6]	Computed inspections at issue to troops [7]
		Not type, class, or grade [2]	Insanitary or unsound [3]				
	Millions of pounds	*Millions of pounds*	*Millions of pounds*	*Percent*	*Percent*	*Millions of pounds*	*Percent*
1941	58. 05	51. 72	6. 33	5. 6	10. 9	0. 49	0. 06
1942	242. 33	221. 46	20. 87	7. 5	8. 6	3. 36	. 17
1943	307. 96	282. 92	25. 04	5. 1	8. 1	17. 49	. 44
1944	374. 20	314. 05	60. 14	4. 6	16. 1	40. 17	. 77
1945	246. 35	200. 11	46. 24	3. 0	18. 8	40. 53	. 66
1946	42. 02	36. 22	5. 80	3. 8	13. 8	15. 17	. 70

[1] Based on data contained in Health of the Army, August 1949, vol. 4, No. 8, pp. 2–9.

[2] Refers to products which have failed to comply with Army purchase instruments in matters such as quality, sex, age, fat content, color and artificial color, damaged cans or cases, excess moisture, improper packing and packaging, improperly trimmed, insufficient curing or smoking, mutilated, defrosted, overweight, seedy, soft and oily, undercured, underweight, and storage deterioration.

[3] Refers to products such as broken eggs, contaminated, decomposed, putrid, rotten, moldy, uninspected by U.S. Department of Agriculture, off flavor, parasitic infestation, rancid, short vacuum, slimy, sour, stale or deteriorated, swellers and leakers, and diseased.

[4] The total procurement inspections were simply the sum of the inspection prior to purchase and the inspection on delivery at purchase. Actually, not all food products were inspected prior to purchase (that is, during manufacture or packaging), but these and considerably larger quantities of others which are not so inspected are always inspected when delivered to and purchased by the Army. Thus, to compute more realistic data of the actual amounts of foods inspected for procurement, the amounts passed during inspection prior to purchase may be disregarded (because the same foods are reinspected, or figuratively duplicated) in the inspections on delivery at purchase. Conversely, the computed procurement inspection is the sum of the quantities inspected (both passed and rejected) on delivery at purchase and the quantities rejected during inspection prior to purchase. This column is the procurement inspection total rejections shown as percent of the sum of the inspection on delivery at purchase and the rejection prior to purchase.

[5] Based on total amount inspected.

[6] Surveillance inspections relate to Government-owned food products, and these, having passed procurement inspection, cannot be rejected except for insanitary condition or unsoundness.

[7] The total surveillance inspections were simply the sum of the inspections on any receipt except purchase, in storage and at time of shipment, and at issue to troops; in fact, it is a duplication possibly of a given quantity of food as it was received in depots, stored, transshipped, and issued. Probably, more realistic data on such a given quantity may be observed in the inspection at issue to troops, which was the final, one-time inspection before its consumption. This column is the surveillance inspection total rejections shown in percent of the sum of these rejections plus the passed inspection at time of issue to troops.

nally named Services of Supply). The Surgeon General's Office (and the Medical Department), along with the several supply arms and branches, came under the jurisdiction and were subjected to the authority of the new Army Service Forces command. In consequence, recommendations of the Army Veterinary Service in general lost much of their identity and finality because any Medical Department policy was necessarily subjected to the approving authority of Army Service Forces headquarters before the War Department General Staff and Chief of Staff could pass on them; the Army Ground Forces and the Army Air Forces imposed additional qualifications

before these recommendations reached the veterinary personnel in the field.[1] The general trend toward decentralization of authority from these three major command staffs complicated and furthered the losses of decentralized technical supervision over the Army Veterinary Service as a whole. This "decentralization of authority without losing essential control"—as the phrase read—was carried to the extreme in the Army Service Forces which refused authorization to revise properly, and even threatened to destroy, the existing veterinary reports and Army-wide reporting procedures on sick and wounded animals and on the inspections of food. Both reports were critically needed by the Veterinary Division to plan for, and to evaluate, the efficiency of the Army Veterinary Service.

TABLE 7.—*Personnel on duty in the Veterinary Division, Surgeon General's Office, 30 June 1939–30 June 1946*

Personnel	1939	1940	1941	1942	1943	1944	1945	1946
Veterinary Corps officers:								
Brigadier general	------	------	------	1	1	1	1	------
Colonel	------	1	1	1	1	2	2	3
Lieutenant colonel	2	1	2	3	3	2	1	1
Major	------	------	2	1	[1] 1	1	2	------
Captain	------	------	------	1	1	------	------	------
Branch immaterial (later Sanitary Corps officer), major	------	------	------	------	1	1	1	------
Total officers	2	2	5	7	8	7	7	4
Civilian employees	4	4	12	19	15	17	16	7

[1] Assigned to duty in Military Personnel Division.

Sources: (1) Annual Reports of The Surgeon General, U.S. Army. Washington: U.S. Government Printing Office, 1939–41. (2) Reports, Veterinary Division, Surgeon General's Office, for the annual reports of The Surgeon General, 1942–46. [Official record.]

In the general reorganization of the Surgeon General's Office during August 1942, the Veterinary Service organization again became the Veterinary Division, but it was grouped with other divisions (such as Medical Practice, Dental, Nursing, and Preventive Medicine) under the newly formed Professional Services, now a major organizational unit within the Surgeon General's Office. This action marked the low-water mark in the history of technical administration of the Army Veterinary Service because Professional Services stood in the way of the direct access that the nominal chief of the Veterinary Corps formerly had to The Surgeon General who, himself, had lost his channel of direct communication with the Chief of Staff during March 1942. During the period of the next 2 years, the director of the

[1] The headquarters of the Army Ground Forces and the Army Air Forces at no time during World War II included veterinary staff officers.

Veterinary Division was assisted in his staff work with the following branch organizations:

Veterinary Policies Branch (formerly Miscellaneous Branch)
- Qualifications Section
- Correspondence and Publications Section
- Equipment and Construction Section

Meat and Dairy Branch
- Inspection Section
- Quartermaster Subsistence Liaison Section
- Reports Section

Animal Service Branch
- Veterinary Hospitalization Section
- Remount Liaison Section
- Report Section

On August 1944, Professional Services was dissolved, and the Veterinary Division regained its standing as a major element in the organizational structure of the Surgeon General's Office; the director of the Veterinary Division again had direct access to The Surgeon General.

Veterinary Consultants Division

There was little change in the status of the Veterinary Division during the remainder of the war. However, on 19 April 1945, the position of The Surgeon General to advise on matters pertaining to the health of the Army was removed from effective supervisory control by the headquarters of Army Service Forces (*3*). Returning to the situation which existed before 9 March 1942, The Surgeon General again became "the chief medical officer of the Army and the chief medical adviser to the Chief of Staff and the War Department." On 18 October 1945, the Veterinary Division was renamed the Veterinary Consultants Division. Though the change in name was made without reduction in the scope of current veterinary administrative responsibilities within the Surgeon General's Office, the new name erroneously conveyed the impression that the chief of the division was only a professional adviser or special civilian consultant to The Surgeon General. By the end of the winter of 1945–46, all officer personnel who had seen wartime service in the Surgeon General's Office were retired, discharged from active duty, or reassigned, and were replaced by newly assigned personnel. Also, the personnel space authorizations were cut back after V–J Day to three veterinary officers and seven civilian employees.

Traveling Veterinary Consultants

Veterinary consultants were essential because the administrative responsibilities of the Veterinary Division had been largely subordinated (1) to the wartime staffing empires in the headquarters of Army Service Forces and,

for a time, in the Professional Services organization of the Surgeon General's Office, and (2) by the general trends in decentralization of authority and functions. The necessary liaison and technical evaluation on uniformity of the widespread operations and efficiency of the Army Veterinary Service, particularly its food inspection activities throughout the Zone of Interior, were retained in the Surgeon General's Office by a newly developed program of field inspection. A similar program had been established and maintained during World War I, but then the program involved the assignment of general veterinary inspectors, five in number, who sought to improve the veterinary service with animals. In World War II, the program involved the utilization of three traveling veterinary consultants who were concerned with the inspection of foods.

The wartime program seems to have originated on 8 September 1942 with the headquarters of Army Service Forces (then called Services of Supply) which in a general administrative memorandum requested The Surgeon General and other technical service chiefs to encourage and develop a well-organized program of field inspections. During the next month, the Veterinary Division proposed a checklist on its conduct of inspections of veterinary activities in the service commands; the latter, superseding the corps areas, had become the principal field organizations of the Army Service Forces. A similar checklist was developed for use by the service command veterinarians even though AR 40–2010 expressly provided for each such veterinary staff officer "* * * to act as veterinary inspector for the service command * * *" and defined his specific duties. On 30 April 1943, the Veterinary Division advanced a specific proposal for expanding the field inspections beyond the geographical limits of service commands by the establishment of a program operated by the Surgeon General's Office.

Subsequently, on 3 May 1943, the headquarters of Army Service Forces granted the augmentation of personnel space authorizations to the Surgeon General's Office by four veterinary officers "to provide positions as traveling Veterinary Corps inspectors, under The Surgeon General." Later, this number was reduced to three and then, after World War II, to two traveling veterinary consultant officers. Actually, not more than three such officers were on duty at any one time during World War II.[2] Though assigned to duty with The Surgeon General, they were attached for administrative purposes to the Chicago Medical Depot, Chicago, Ill., until the fall of 1944, when they were reattached to the Kansas City Medical Depot, Kansas City, Kans., and then, after January 1946, to the St. Louis Medical Depot, St. Louis, Mo.; however, Chicago proved to be the best location for their field office because the Quartermaster Corps had located most of its

[2] During the summer of 1943, Colonels Frank M. Lee, Gerald W. FitzGerald, and Oness H. Dixon, Jr., were assigned as traveling consultants. Colonel Dixon was replaced in April 1944 by Col. Jacob L. Hartman; on 10 July and 10 August 1945, Colonels Lee and FitzGerald, respectively, were reassigned, but their places were filled by the assignment of Col. John H. Kintner on 3 July 1945 and Col. Gardiner B. Jones on 15 February 1946.

food procurement operational headquarters there. The traveling consultants were ordered on detailed itineraries of travel which were developed by the Surgeon General's Office. After their tour of travel or conduct of special investigations of veterinary food inspection activities at given places, the traveling consultants submitted reports of inspection to The Surgeon General, who then initiated letters recommending corrective action, if and when indicated, to the pertinent major commands. This field inspection program proved of excellent value in making for uniformity and standardization of procedures pertaining to the inspection of meat, meat-food, and dairy products, and the dissemination of current information relative to changes in and the interpretation of specification requirements. The success of the program was reflected in the continued assignments of traveling consultants under the supervision of The Surgeon General during the post-World War II period and in the subsequent definition of them in SR 40–930–1.

Tours of Inspection

Other means of coordinating the Army Veterinary Service included the conduct of conferences, meetings, surveys, and visits of observation by the officer members of the Veterinary Division. To a certain degree, these were augmented by inspections of field activities conducted by the Inspector General's Department and by The Surgeon General and senior officers of his staff—the latter, especially before their departure, having been informed by the Veterinary Division of the local veterinary situation or problems in the areas to be visited. While it is impractical to record each such event, special mention is made of the tours of inspection by Veterinary Division personnel to the oversea theaters during World War II as follows:

Liaison duty with the British Army Veterinary Remount Services in the European, Mediterranean, Middle East, and India-Burma areas, 27 November 1943 to 17 February 1944.

Survey of the sanitary, veterinary, and other professional services in the China-Burma-India theater, 10 October to 11 November 1944.

Observation of operation of the Army Veterinary Service concerned with food inspection in the Mediterranean theater, 25 March to 25 April 1945.

It should be mentioned also that the Veterinary Division did not promulgate circular letters or similar mediums of technical and professional information to the Army Veterinary Service such as was done during World War I. The *Army Veterinary Bulletin*, a periodical which was used to disseminate such information continuously since its first appearance on 14 January 1920, was stopped after the publication of the July 1943 issue; the integration of this bulletin with the professional publications of the Medical and the Dental Corps gave origin to *The Bulletin of the U.S. Army Medical Department*, a recurring monthly publication appearing first in October 1943 and continuing through the remainder of World War II.

References

1. Letter, The Adjutant General to Col. R. A. Kelser, VC, Veterinary Division, Surgeon General's Office, 17 Mar. 1942, subject: Appointment as Brigadier General.

2. War Department Circular No. 59, 2 Mar. 1942, subject: War Department Reorganization.

3. War Department Circular No. 120, 18 Apr. 1945, sec. IV, subject: The Surgeon General.

CHAPTER IV

Personnel

In the Army of World War II that at one time (July 1944 through August 1945) exceeded 8 million personnel and had more than 56,000 horses and mules (during 1943), the Veterinary Service reached a peak strength of slightly over 2,100 veterinary officers and possibly more than 6,000 to 8,000 enlisted personnel. During the greater part of the war period, the veterinary officer-Army strength ratio was about 1:4,000.

COMPOSITION OF THE VETERINARY CORPS

The wartime Army Veterinary Service was composed of military personnel, both commissioned officer and enlisted personnel, and a relatively small group of civilian employees. The commissioned personnel were, with rare exception, male veterinary officers. At peak strength, their number approximated 15 percent of the Nation's total veterinary manpower. These veterinary officers were appointed in the statutory-defined components of the Army of the United States: (1) the Regular Army, (2) the Officers' Reserve Corps, (3) the National Guard—each such component including a Veterinary Section or Veterinary Corps, or (4) the Army of the United States, wherein officers were appointed without reference to a particular arm or service branch.[1] Retired officers of the Regular Army comprised yet another category of the World War II veterinary officer strength (table 8).

Regular Army

The strength of the Veterinary Corps, Regular Army, fixed at 126 personnel space vacancies pursuant to congressional appropriations legislation after 1922, was unchanged throughout the war period, but its active-duty strength was permitted to decline to a low of 117 officers as of V–J Day and then to 109 veterinary officers within the next year (table 9). After July 1939, 10 officers were commissioned to maintain the Veterinary Corps, Regular Army, against personnel losses due to deaths, retirements, and resignations. The last of these appointments was made in 1943; in January 1944, the War Department ordered a general stoppage to original appointments of officers in the Regular Army. Although Regular Army officers who had been retired could be returned to active-duty status with or without their consent, not more than two such veterinary officers were called to duty at any time during World War II.

[1] Technically, the Regular Army, Reserve Corps, and National Guard veterinary officers were appointed into the Veterinary Corps of their respective components, but the Army of the United States veterinary officer was appointed as an officer of the Army generally and then detailed to duty with the Veterinary Corps.

TABLE 8.—*Composition of the Veterinary Corps, according to component, 1939–46*

Periods	Total	Regular Army	Retired Regular Army	National Guard	Officers' Reserve Corps [1]
Prewar emergency periods:					
30 June 1939	126	126			
30 June 1940	151	126			25
30 June 1941	597	126	2	34	435
Near 7 Dec. 1941	695	124	2	28	541
War period:					
31 Dec. 1941	716	126	2	33	555
30 June 1942	952	126	2	30	794
1 Jan. 1943	1,532	126	2	35	1,369
26 June 1943	1,839	126	2	29	1,682
1 Jan. 1944	2,039	125	2	28	1,884
1 July 1944	2,091	125	2	26	1,934
30 Dec. 1944	2,071	124	2		1,954
30 June 1945	2,108	120	2		1,986
Near V–J Day	2,171	117	2		2,052
Postwar period:					
29 Dec. 1945	1,826	113	1		1,712
1 June 1946	1,050	109	1		940
28 Dec. 1946	695	176			519

[1] From 1 January 1943, includes AUS officers.

Sources: (1) Annual Reports of the Surgeon General, U.S. Army. Washington: U.S. Government Printing Office, 1939–41. (2) Reports, Veterinary Division, SGO, for annual reports of The Surgeon General, U.S. Army, 1942–45. [Official record.] (3) Crosby, J. F.: Procurement of Veterinary Officers, 1939–43. (4) Strength reports of Military Personnel Division, SGO. (5) Memorandum, Director, Military Personnel Division, SGO, for Col. G. F. Lull, SGO, 29 Oct. 1942.

Officers' Reserve Corps

The Veterinary Corps Reserve was the major source for officers in the active Army Veterinary Service during its expansion from the peacetime strength of 126 regular Veterinary Corps officers to a peak active-duty strength of 2,116 officers which was reached during World War II. The expansion progressed in an orderly manner, as contrasted with the situation in World War I, when no such reserve force came into existence until the summer-fall of 1917. Ten Reserve officers were initially ordered to 1 year's active military duty during the fall of 1939 pursuant to the congressional enactment of 3 April 1939 which provided for augmenting the active Army's defense forces in the Panama Canal Zone and for increasing the Air Corps (*1*, *2*, *3*). Additional Veterinary Reserve Corps officers were then brought into active service as subsequent military legislation increased the enlisted strength of the Regular Army, federalized the National Guard, and provided for the selective service (or draftee) Army. By the time of the Japanese attack on Pearl Harbor (7 December 1941), the active-duty strength of the Army Veterinary Service included 541 Veterinary Corps

TABLE 9.—*Veterinary Corps, Regular Army, 1939–46*

Date	Actual strength	Gains (new appointments)	Losses				Grades					
			Total	Death	Retirement	Resignation	Brigadier general	Colonel	Lieutenant colonel	Major	Captain	First lieutenant
20 June 1939	126	5	5	1	3	1	0	4	73	9	35	5
30 June 1940	126	4	4	0	3	1	0	15	61	9	37	4
30 June 1941	126	2	2	1	1	0	0	15	59	12	35	5
Near 7 Dec. 1941	124						0	20	53	17	34	0
31 Dec. 1941	126											
30 June 1942	126	3	3	1	1	1	1	33	43	28	21	0
1 Jan. 1943	126											
26 Jan. 1943	126	1	1	0	1	0	1	52	37	35	1	0
1 Jan. 1944	125						1	68	23	32	1	0
1 July 1944	125	0	1		1		1	70	24	29	1	0
30 Dec. 1944	124						1	71	26	25	1	0
30 June 1945	120	0	5	0	5	0	1	74	25	20	0	0
Near V–J Day	117						1	74	27	15	0	0
29 Dec. 1945	113						1	71	27	14	0	0
1 June 1946	109	0	11	[1] 3	8	0	0	70	26	13	0	0
28 Dec. 1946	176						0	53	35	51	35	2

[1] Included two battle casualties during the Japanese invasion and occupation of the Philippine Islands; this information did not become available until after World War II.

Source: (1) Annual Report of the Surgeon General, U.S. Army. Washington: U.S. Government Printing Office, 1939–41. (2) Reports, Veterinary Division, SGO, for annual reports of The Surgeon General, 1942–46. [Official record.] (3) Crosby, J. F.: Procurement of Veterinary Officers, 1939–43. (4) Strength reports of Military Personnel Division, SGO. (5) Memorandum, Director, Military Personnel Division, SGO, for Col. G. F. Lull, SGO, 29 Oct. 1942.

Reserve officers. Before the end of another year, the remainder were called to active duty, and thus, this Reserve personnel force was practically depleted.

The total strength of the Veterinary Corps Reserve ranged between 1,381 and 1,537 officers during the prewar emergency periods. This strength was not larger because of the limitations imposed by the War Department rather than the unwillingness of the Nation's civilian veterinary profession to support actively its military counterpart as in the past. On 8 December 1939, the War Department suspended the appointment of additional officers in the Officers' Reserve Corps. However, certain exceptions were concurrently authorized so that the Veterinary Corps Reserve actually showed a net gain of 156 officers between 1 July 1939 and 30 June 1940.

In December 1940, the year-long suspension order was amended to reopen appointment procedures, but only in those Medical Department sections of the Officers' Reserve Corps which had personnel space vacancies remaining in their current peacetime procurement objectives. The amended order found the Veterinary Corps Reserve to be in excess of its objective; this order had for its purpose the buildup of a reserve personnel force which was then estimated as being required during the period of war mobilization and until wartime officer procurement procedures could satisfy the veterinary officer needs. Under the conditions, additional Veterinary Reserve Corps officers were not appointed except under extraordinary grants of authorization which are described later.

Of course, the ordered stoppages of the Veterinary Corps Reserve did not gain support from the Surgeon General's Office which had recommended the continuation of its buildup. It was believed that physical disqualifications, resignations, deferments, and other personnel considerations would cause an estimated reduction (by 25 percent) in the reserve strength to 1,148 effective officers. Furthermore, the Surgeon General's Office believed that all Veterinary Reserve Corps officers would have to be ordered to active duty before the summer of 1942, and thus, no reserve force would be available to meet requirements after that time.

Over these protests, however, the War Department continued its general suspension orders against the further buildup of the Veterinary Corps Reserve. Though exceptions or waivers to the suspension orders were granted, as previously noted, these proved to be unimportant as they related to actually strengthening the Veterinary Reserve Corps. Instead, the waivers were granted only as a means of conserving a segment of the Nation's veterinary manpower which might have otherwise been called to duty in a nonprofessional capacity. This conservation action was extremely important. For example, a waiver was granted in the instance of 32 veterinary students who, pursuant to an authorization granted by the War Department, in August 1940, were transferred from their appointments in non-Medical Department sections of the Officers' Reserve Corps (which were being

ordered to active duty) to the MAC (Medical Administrative Corps) Reserve, whereby they were retained on inactive-duty status pending completion of their professional veterinary education. In May 1941, the War Department authorized 17 of these MAC officers to be conversion-transferred to the Veterinary Corps Reserve (*4*, *5*, *6*). In the same month, the War Department also encouraged those graduate veterinarians who were being inducted pursuant to the Selective Training and Service Act of 1940 to apply for Veterinary Reserve Corps appointments, whereupon, if accepted, they were to be discharged from their enlisted status and then ordered to a 1-year tour of duty. After the fall of 1941, these applications by inducted veterinarians were regarded as being made for appointment as officers in the Army of the United States.

Military legislation and recurring congressional appropriations after 1920 prohibited the employment of a Reserve Corps officer on active duty for more than 15 days without the consent of the individual, except at such time as Congress declared a national emergency. No such emergency was declared until after the Pearl Harbor attack; on the other hand, Presidential proclamations of national emergency were made in the interim, and these were supported by congressional legislation which permitted the gradual entry of the Officers' Reserve Corps into active military status. Thus the congressional appropriations legislation contained in the act of 1 July 1939 referred to the existing prohibition on the pay of Reserve Corps officers on duty for more than 15 days each year but expressly provided for paying those, including 10 of the Veterinary Corps Reserve, who were to be ordered to 1-year tours of active duty in connection with the Regular Army augmentation and Air Corps expansion that were described in the Supplemental Appropriation Act of 3 April 1939. Later that year, the War Department planned for an increment of 10 more active-duty Veterinary Corps reservists. Their pay did not become available, however, until February 1940 when congressional appropriations legislation again made reference to expenditures which were exceptional to the pay of the Officers' Reserve Corps who were on active duty more than 15 days each year. This was more-or-less repeated in subsequent appropriations legislation until the fall of 1940 when no such limitation was prescribed.

In the meantime, the War Department, after its ordering of early increments of Reserve Corps officers to active duty with the Regular Army, indicated its intentions to use only those who volunteered, were in the grades of lieutenant or captain, and were under 35 years of age, and to permit them no extension of duty beyond an initial tour of 1 year. The same conditions governed the request which was made in May 1940 for five more Veterinary Corps Reserve officers; of course, their assignments were limited to stations in the continental United States unless they were assigned to duty with the Air Corps. During June 1940, the War Department authorized Reserve Corps officers to volunteer for foreign service and concurrently granted them

privileges to voluntarily extend their initial 1-year tour for an additional 1-year period. All of this was changed during the summer of 1940, as attention was directed to the increasing threat to American security which had come with the successes of the German armies in Europe and to the problems of federalizing the National Guard and developing and training America's draftee Army.

Pursuant to the enactment approved on 27 August 1940, Presidential authority was used in ordering Reserve Corps officers into active duty, with or without their consent, for a 12-month period, and in assigning them anywhere in the Western Hemisphere and in the territories and possessions of the United States. This marked the first time since World War I that the Officers' Reserve Corps came under compulsion to fulfill its real purpose. At the time, there were only 52 Veterinary Reserve Corps officers on active duty, but a total of 76 alone were needed in connection with the current Regular Army increases to 280,000 enlisted strength. Originally, the Surgeon General's Office conceded to individual requests for deferring orders, but as more and more Reserve Corps officers had to be ordered to active duty, the increased protests by these officers led to the following remark: "It is to be regretted that Reserve officers upon assuming occupational civilian responsibilities incompatible with their obligation as officers of a Reserve component of the Army, should not, prior to the current emergency, have taken timely steps to terminate their commissions" (*5, 7, 8*). However, the War Department authorized Reserve officers to resign their commissions before the end of March 1942, if they were occupying key positions in essential civilian industry, in Federal employment, or were members of faculties of civilian colleges. Unfortunately, the new law also authorized Reserve officers in the grade of captain and below, who had dependents, to resign their appointments on request within 20 days after entry into active duty. Thus, many Veterinary Reserve Corps officers were soon lost by their own resignation, and 178 others either terminated their appointment or were transferred to the Inactive Reserve.

In the fall of 1940, the War Department indicated that Reserve Corps officers would accompany the oversea movements of the units to which they might be assigned, regardless of their length of service, and authorized the oversea departments to satisfy their needs whenever possible by the ordering to duty of such officers who might be residing there. Though the new law of 27 August 1940 provided a technical means for the War Department to retain Reserve Corps officers who had previously volunteered for active duty by reordering them into a second 1-year tour, without their consent, the War Department generally refrained from keeping them beyond the initial duty tour except in the instance of those in the Air Corps or Medical Department Reserves who volunteered for a second tour. Then, pursuant to the Service Extension Act of 18 August 1941, the active duty tours of Reserve Corps officers were extended to 18 months. During this

period, the War Department liberalized its policy on the assignment of Reserve officers to foreign service in the oversea insular departments, including Alaska, and to the defense bases which had been newly acquired in the Atlantic and Caribbean areas.

Shortly after 7 December 1941, the War Department terminated all of its prior policies regarding the release of the Officers' Reserve Corps from active service and indefinitely extended their tours of duty. This was confirmed by Public Law 338, 77th Congress, approved 13 December 1941, which suspended "during the existence of any war in which the United States is engaged and during the 6 months immediately following the termination of any such war" those earlier limitations which had been statutorily imposed on the periods of active service and territorial deployment of Reserve Corps officers.

National Guard

The National Guard, like the Officers' Reserve Corps, was a reserve component of the Army of the United States. Its induction (or federalization) into active military service was ordered by the President in 22 increments, over the period from 16 September 1940 to 23 June 1941, and was authorized by the same legislation that brought Reserve Corps officers to active duty with or without their consent; namely, Public Law 96, 76th Congress, approved 27 August 1940. The federalization of the National Guard augmented the active-duty strength of the pre-Pearl Harbor Veterinary Service by 37 officers (table 10). This number was approximately one-half of the National Guard veterinary officers a year earlier when it totaled 74.

After the mid-1930's, the trends in motorization of military units led to the removal of the office of division veterinarian in each of the 18 infantry divisions which were later inducted, and the horse-drawn field artillery regiments, with the exception of one, were converted into motorized units. Also, the veterinary company elements (12 in number in 1925 but reduced to 7 in 1939) of the National Guard medical regiments were converted into other type units so that only one remained active as of 30 June 1940, but none were brought into active duty. In September and October 1940, the National Guard's 4 cavalry divisions, 6 cavalry brigades, and 17 cavalry regiments were disbanded or converted into other type units, with the result that the only cavalry units to be federalized included a brigade, 2 (horse) regiments, and 7 (horse-mechanized) regiments. The veterinary officers accompanying these units, which were now dismounted and brought into active military service, were frozen in their National Guard assignments until the fall of 1941 when they could be reassigned to corps areas and certain installations in the Zone of Interior. Though the National Guard units were ordered into active service for a 1-year tour of duty, as was true also for the Officers' Reserve Corps, their tours of duty were extended to 18 months pursuant to the Service Extension Act of

18 August 1941, and then more-or-less indefinitely by the act approved 13 December 1941.

TABLE 10.—*Veterinary Corps, National Guard, 1939–44*

Date	Total commissioned	Commissioned strength [1]	Ranks			
			Lieutenant colonel	Major	Captain	First lieutenant
Total:						
30 June 1939	74	73	0	8	58	7
30 June 1940	68	64	0	5	50	9
30 June 1941	37	33	2	12	14	5
On active duty:						
30 June 1939	0					
30 June 1940	0					
30 June 1941	34					
Near 7 Dec. 1941	28					
31 Dec. 1941	33					
30 June 1942	30		9	10	6	5
1 Jan. 1943	35					
26 June 1943	29		10	12	2	5
1 Jan. 1944	28		10	11	2	5
1 July 1944	26		10	10	1	5

[1] The discrepancy between the figures for the total number of commissions and the figures for commissioned strength is almost entirely due simply to the lag between dates of appointments and acceptances of appointments.

Sources: (1) Annual reports of the Surgeon General, U.S. Army. Washington: U.S. Government Printing Office, 1939–41. (2) Reports, Veterinary Division, SGO, for annual reports of the Surgeon General, 1942–46. [Official record.] (3) Crosby, J. F.: Procurement of Veterinary Officers, 1939–43. (4) Strength reports of Military Personnel Division, SGO. (5) Annual reports, Chief, National Guard Bureau, 1939–41.

Army of the United States

The requirements for officers additional to those of the Regular Army, Officers' Reserve Corps, and National Guard were met by the grant of officer appointments, directly into the Army of the United States, to the following categories of veterinarians: (1) Those who were inducted into the Army as enlisted men pursuant to the Selective Training and Service Act of 1940; (2) veterinarians direct from their civilian status; and (3) those who, as professional students in approved veterinary colleges, had voluntarily obligated themselves to military service by applying for appointment as second lieutenants, MAC, or by enlisting in the Medical Enlisted Reserve Corps and then continuing or completing their education while in a military status. Of course, as previously pointed out, these veterinarians were not appointed as Veterinary Corps officers per se but as officers in the wartime Army of the United States for duty with the Veterinary Corps. These officer appointments were authorized by Public Law 252, 77th Congress, approved 22 September 1941.

Perhaps the first reference to the appointment of veterinary officers into the Army of the United States was contained in the statement of War Department policy regarding those veterinarians who, after May 1941, following their induction by the Selective Service System, were then being appointed, from their enlisted status, as officers in the Officers' Reserve Corps. This new policy, set forth during the fall of 1941, regarded inducted veterinarians who were then applying for officer status as actually making application for appointment in the Army of the United States. Then, during January 1942, The Surgeon General requested the establishment of a procurement objective for 100 veterinary officer appointments in the Army of the United States, 50 in the grade of first lieutenant to cover the appointments of inducted veterinarians, and the remaining number in the grades of captain and major for appointing certain specially qualified veterinarians direct from civilian life.

There is no record on the outcome of this recommendation; however, on 6 July 1942, the War Department authorized a procurement objective for 250 personnel space vacancies in the Army of the United States which were to be filled by the appointment only of those veterinarians who were being inducted into the Army as enlisted men. Later that year, this procurement objective was amended and augmented to total 1,124 personnel authorizations, and concurrently the sources or categories of veterinarians who could be procured were expanded to include direct appointments from civilian-status and military-obligated veterinarians. In October 1943, this procurement objective was canceled by the War Department General Staff, but appointing procedures were kept open for certain categories of veterinarians. On 12 December 1944, a procurement objective was reestablished for appointing 52 additional veterinary officers, and the veterinary personnel sources again were prescribed. After that time, reference was made to ceilings of veterinary officer personnel in the Army of the United States (rather than to procurement objective), and these total numbers were to be attained and maintained by additional appointments in the Army of the United States. (The ceilings included the Regular Army, Officers' Reserve Corps, and National Guard veterinary officers then on active duty.) Such a total ceiling for 2,150 officers was authorized by the War Department during April 1945; on 13 July 1945, this ceiling was raised to 2,327 personnel space authorizations in the wartime Army Veterinary Service. The established ceilings were not met before the end of the active war period. On 2 September 1945, the War Department ordered a cancellation on unfilled position vacancies in the existent ceiling, which brought a temporary halt to veterinary officer appointments in the Army of the United States.

Inducted Veterinarians

The veterinarians who were inducted into the Army proved to be a smaller source for veterinary officer procurement in World War II than was

anticipated. In fact, though more than 200 were inducted during the first 2 or 3 years of operation of the Selective Training and Service Act of 1940, few were inducted into the Army as enlisted men during the latter part of the war period. Their induction (or draft) into the Army was the activity of the Selective Service System with its 64,000 or more, local draft boards which could enter almost any qualified male citizen into the military service. The deferment to groups of men by sole reason of occupation was illegal, but individuals could be, and were, deferred, each on his own individual merit, by reason of being engaged in, or in training and preparation for, certain occupations. Attempts to legislatively amend the act of 16 September 1940 to provide for the blanket deferment of certain medical occupations failed to gain headway; on the other hand, the National Headquarters, Selective Service System, advised (though it could not direct) the local draft boards on matters concerning the Nation's manpower situation in certain occupations and suggested that they adopt a policy of deferring individuals who were engaged in such occupations. Pursuant to the law, each local selective service board was autonomous in its deliberations on the deferment of any registrant under its jurisdiction.

Before the Selective Service System announced its intentions to defer individuals because of veterinary occupational activities, the Surgeon General's Office had impressed the War Department with the need to conserve and properly utilize so much of the Nation's veterinary manpower as might be inducted into the Army as enlisted men. Thus, during May 1941, the War Department granted authorization for veterinarians who were inducted to apply for veterinary officer appointments in the Officers Reserve Corps (*9, 10*). This was a specific exemption to the general stoppages on additional Reserve Corps appointments that had been ordered by the War Department more than a year before. In the fall of 1941, the War Department restated its policy that applications by the inducted veterinarians would be regarded as being made for officer appointments in the Army of the United States. On 6 July 1942, following the request of The Surgeon General, the War Department provided for a procurement objective of 250 personnel space authorizations in the Army of the United States which would cover the appointments of veterinarians who might be inducted. By that time, the Surgeon General's Office was reviewing the induction actions by the Selective Service System as comprising a source of veterinary officers who were needed in the expanding Army.

In November 1942, the number of inducted veterinarians had fallen far short of meeting both the Army's procurement objective and the increasing requirements for veterinary officers. In fact, by that time only 114 veterinary officers had been procured from this source, and in the interim another source of veterinarians had come into existence; namely, the recent graduates from civilian veterinary colleges who had gained original appointments as second lieutenants in the MAC, Army of the United States, and

had been kept on inactive-duty status while completing their professional education.

Thus the War Department amended, and then supplemented, the original procurement objective so that the unoccupied space authorizations could be filled from several categories of veterinarians: Those who might be inducted, those who had recently graduated while holding temporary appointments as MAC officers, and veterinarians appointed direct from civilian life. These sources for appointing additional veterinary officers in the Army of the United States were changed as these procurement objectives were changed at various times throughout the remainder of the war period, though, in all instances, inducted veterinarians were granted a priority for appointment in meeting the needs for additional veterinary officers. As of 31 December 1942, the active-duty strength of the Veterinary Corps included 180 formerly inducted veterinarians, and, during 1943, another 46 were processed for officer appointments.

Local draft boards were advised by the National Headquarters, Selective Service System, during May 1941, that a dangerously low level of manpower existed in the Nation's veterinary profession and that the latter "* * * constitutes an activity essential to the national health, safety, and interest, and that a serious interruption or delay therein is likely to impede the national defense program" (*11*). The Selective Service policy and procedure statement was as follows:

> The local board has the problem of deciding, subject to appeal, whether or not an individual veterinary is so necessary to a community that he should be deferred from training and service * * *. This problem should be approached with a clear appreciation of the overall national shortage and with the vital importance of the food and livestock industry to the national health, safety and interest, and the needs of the particular community for veterinary services clearly in mind. In classifying, the local board should give full weight to the fact that the Veterinary Corps Reserve is at present of sufficient strength to fill current Army needs. If, nevertheless, the local board determines that he should not be deferred, and he is finally placed in Class 1–A, it should call his attention to the following War Department instructions:
>
> "Individuals who are qualified for appointment in the Veterinary Corps Reserve who have been inducted under the provisions of the Selective Training and Service Act of nineteen forty should be encouraged to apply for appointment in order that they may serve in a professional capacity. Individuals accepted for appointment will be discharged and ordered to extended active duty for a period of twelve consecutive months."

Shortly after the attack on Pearl Harbor, the National Headquarters, Selective Service System, restated the personnel shortages among the country's veterinary profession and requested that its field agencies, when considering nondeferment of veterinarians, consult with the Procurement and Assignment Service, a newly created agency which was surveying the medical personnel situations in localities throughout the United States (*12*, *13*, *14*). The spring of 1942 saw the issuance of the first of a series of occupational bulletins wherein the local draft boards were better advised on deferring

veterinarians from induction, and the War Manpower Commission was named as certifying authority of occupations which were critical.

The veterinarians in civilian life who were engaged in caring for food and draft animals or in the inspection of foods were described as being essential to agricultural activities and, in March 1943, also as essential in the Nation's health and welfare services. These actions resulted in lesser numbers of veterinarians being inducted into the Army but did not stop their induction. The early months of 1944 saw occupational deferments for individual veterinarians temporarily vacated when the Selective Service System intensified its efforts to induct personnel under 26 years of age in order to meet unexpectedly large quota demands by the Army for personnel. However, during April 1944, the Army's requirements were soon filled so that veterinarians in this particular age bracket were again granted deferment if found to be engaged in essential civilian activity.

Veterinarians in Civilian Status

Until the fall of 1942, veterinarians in full civilian status who were under no obligation to serve in the Armed Forces, other than that described in the Selective Training and Service Act of 1940, were not a material part of the Army's veterinary officer procurement picture. In fact, by 31 December 1942, the active-duty strength of the Veterinary Corps (more than 1,500 officers) included only eight veterinarians who had been granted officer appointments direct from their civilian status—the remaining numbers, of course, being Regular Army, Officers' Reserve Corps, and National Guard veterinary officers, formerly inducted veterinarians, and a few ex-MAC officers. Then, pursuant to the authorizations granted by the War Department during November 1942 which provided for a total of 1,124 space vacancies in the Army of the United States without expressed restrictions on the sources of the veterinary personnel supply, the veterinarians in civilian status were entered into Army personnel procurement. During 1943, 104 such veterinarians were recommended for direct appointment. However, in September 1943, these personnel procurements were seriously questioned by the War Department General Staff, particularly, since it had become evident that there were more than sufficient numbers to meet present and immediate future needs from among military-obligated veterinarians (such as those graduating under the Army Specialized Training Program) and inducted personnel. The Veterinary Division, Surgeon General's Office, replied to the inquiry that certain veterinarians with training or experience in specialized fields of veterinary medicine were needed and could not be obtained except by recruitment directly from the civilian veterinary profession.

In October 1943, the Secretary of War ordered a general cancellation on further procurements of officers direct from civilian life, but pursuant to his instructions "requests for the appointment of individuals with out-

standing qualifications and experience in special fields * * * may be submitted to the Assistant Chief of Staff, G–1, who is authorized to waive the requirements of a procurement objective." This restriction on the procurement of veterinarians direct from civilian status was incorporated into every veterinary officer procurement objective and ceiling throughout the remaining war period. However, those veterinarians who, at one time during the war, were discharged from their original appointments in the MAC or their enlistments in the Medical Enlisted Reserve Corps (under the Army Specialized Training Program) were not regarded as being in this category of civilian status and thus were appointed. Veterinary officer procurement by the Army during World War II was, with the exception of an 11-month period (November 1942–October 1943), almost completely independent of withdrawals of personnel direct from the Nation's civilian veterinary profession except where such veterinarians had prior obligations for military service.

A special military agency, the Officer Procurement Service, was in operation in the particular period in which relatively large numbers of veterinarians in civilian status were appointed directly into the Army of the United States. This agency was established within the Army Service Forces (then named Services of Supply) during November 1942, under provisions of War Department Circular No. 367, 7 November 1942. The Officer Procurement Service sought to procure veterinarians direct from their civilian status to satisfy stated requirements, accomplishing this through 30 officer procurement districts and processing them for appointment as officers. In this action, the Officer Procurement Service procured only those veterinarians declared available by the Procurement and Assignment Service (which was the same agency that was advising the Selective Service System against inducting professional personnel when they were engaged in essential civilian activities). Although an objective for 900 veterinarians was prescribed at the onset, in April 1943, the veterinary personnel procurement activities by the Officer Procurement Service were suspended on request by the Surgeon General's Office. At the same time, the Procurement and Assignment Service was asked to halt declarations of availability of veterinarians; however, the Officer Procurement Service continued to receive such declarations, but in June 1943 these were returned to Procurement and Assignment Service without further action. The request by the Surgeon General's Office was based on the fact that a sufficient number of applications had been received by April 1943 to meet the immediate needs. Then, during the fall of 1943, as previously noted, the War Department ordered a general stoppage on the procurement of officers direct from civilian status which, so far as veterinary officer procurement was concerned, was continued for the remainder of the war period.

The Procurement and Assignment Service, previously mentioned in the discussion on the induction of veterinarians into the Army and then again

briefly in connection with the Army's procurement of veterinary officers direct from civilian life, was a quasi-official civilian Federal agency. It operated to provide a three-way allocation of the Nation's veterinary manpower: to the Army, to nonmilitary Federal agencies, and to civilian activities and occupations which were essential to the war effort. Thus, a major share of its operations are outside of the scope of the current history on military veterinarians. This agency only provided advisory services; basically, it was not a personnel procurement service nor one having assignment responsibilities. Both the Selective Service System and the Army (including its Officer Procurement Service) recognized the advisory responsibilities of the Procurement and Assignment Service as early as January 1942 so that the induction action by one, or the procurement action by the other, would not deplete the medical, dental, and veterinary professional personnel from civilian industry and local populations; before one or the other took action on the withdrawal of personnel from civilian life, they requested clearance for each such personnel from the Procurement and Assignment Service.

The Procurement and Assignment Service was created 30 October 1941 within the Office of Defense, Health, and Welfare Services, Executive Office of the President, and, during April 1942, was transferred to the Office for Emergency Management where it operated under the War Manpower Commission for the remainder of the active war period. Regarding its advisory activities on veterinary personnel matters, this agency included civilian veterinarians at nearly all levels of its organization: A veterinary consultant to the director, a five-member veterinary advisory committee to the central directing board, and a field consultant office which maintained liaison with the American Veterinary Medical Association.

Military-Obligated Veterinary Students

During World War II, veterinary officer procurement was assured and facilitated by the current output from the Nation's civilian veterinary colleges of undergraduate students who had voluntarily obligated themselves to military service upon completion of their professional education. Beginning in April 1942, more than 1,800 veterinary students were, on their own application, granted appointments as MAC officers in the Army of the United States for retention on an inactive-duty status, until they completed their education, when they became eligible for conversion transfer as veterinary officers and were then ordered to active duty. This student appointing procedure was discontinued in early 1943. Under a new program, the ASTP (Army Specialized Training Program), that lasted for about a year, the students were voluntarily enlisted in the Medical Enlisted Reserve Corps and then ordered to active duty to continue or complete their education at Government expense. Those completing their education while under the auspices of the ASTP immediately became eligible for discharge and subsequent appointment as veterinary officers. The two programs, as will be

described, were established with distinctly separate objects or purposes, but their combined veterinary personnel output was eventually regarded only as one that would satisfy the requirements of the Army for veterinary officers. Like the inducted veterinarians (after the fall of 1941) and those who were appointed directly from civilian status, the graduated students were appointed in the Army of the United States.

The first of the two wartime programs was established principally to conserve the student populations in medical, dental, and veterinary schools against the threat of induction by the Selective Service System. However, even before the selective service legislation was passed (on 16 September 1940) and the concerned agency could show its intentions not to completely disrupt the various professional educational systems, the Surgeon General's Office had become particularly interested in conserving or retaining professional students in their schools until they had graduated or had become qualified for appointment as Medical Department officers. For example, in December 1939, the Veterinary Division, Surgeon General's Office, was engaged in studies on a proposal to arrange for the completion of undergraduate and postgraduate training of students in medicine, dentistry, and veterinary medicine during mobilization. During April 1940, the War Department provided authorization for students in approved professional schools who held non-Medical Department Reserve officer appointments to transfer, at some later date, to the MAC Reserve for assignment and retention on inactive-duty status until graduation, when they became eligible for appointment in the Medical, Dental, or Veterinary Corps Reserve. Thus, in August 1940, arrangements were completed for the transfer of 32 veterinary students who held nonmedical Reserve Corps appointments into the MAC Reserve and for their retention on inactive-duty status until they had graduated and had become eligible for conversion appointment into the Veterinary Corps Reserve. (At least 17 of these were named for conversion appointment upon their graduation from the veterinary schools in mid-1941.) During February 1941, after passage of the selective service legislation, The Surgeon General requested authorization for temporarily appointing into the MAC Reserve, the medical, dental, and veterinary students who were in the junior and senior classes of the professional schools, but the request was disapproved by the War Department (*15*) on the following basis:

> * * * such action would constitute special treatment for a particular class of students which would result in exempting them from Selective Service.
>
> Exemption from Selective Service cannot be justified for any particular group unless it can be clearly demonstrated that the personnel of the group will be required in key positions in industries essential to the national defense.

However, on 17 April 1942, the War Department reversed its policy with respect to veterinary students and authorized the appointment of any or all male students in approved veterinary schools as second lieutenants in the MAC, Army of the United States. These students were given certain

assurances of being retained on inactive-duty status until they had completed their professional education when they would become eligible for conversion appointment and would be ordered to active duty as first lieutenant veterinary officers. The authorization for this appointing procedure lasted about 10 months and was discontinued on 8 February 1943 (*16*, *17*). So far as is known, 1,847 veterinary students were temporarily appointed, on their own application, as MAC officers. These appointments were terminated for convenience of the Government under the following prescribed circumstances: (1) Matriculation in a nonapproved veterinary school; (2) discontinuance of veterinary education; (3) failure to successfully complete the 4-year veterinary curriculum; and (4) failure to gain conversion appointment as veterinary officers within 3 months following graduation. Later in the spring-summer of 1943, a great many of these veterinary students, who had not yet graduated, voluntarily terminated their appointments in order to enlist in the Medical Enlisted Reserve Corps and to continue their professional education under the auspices of the ASTP.

This program, it must be emphasized, was not enthusiastically endorsed by the Veterinary Division, Surgeon General's Office. Before the program was launched, this Division pointed out that (1) the Selective Service System logically should defer veterinary students; (2) the continued flow of newly graduated veterinarians into the Nation's civilian profession would well be disrupted if all of the appointees were to be called to active duty; and (3) if, on the other hand, veterinary students were to be commissioned in the MAC Reserve for the purpose of permitting them to complete their professional education, it should be clearly and definitely provided that upon graduating in veterinary medicine they would be absorbed into the Veterinary Corps only to the extent indicated by military necessity and that those not taken into the Veterinary Corps for active service would be discharged from their MAC commissions and made available for civilian service. Apparently, the emphasis on the latter point was not sufficiently understood because, during May 1942, the War Department asked corps area commanders to appoint all fourth-year veterinary students holding MAC appointments into the Army of the United States as of the date of graduation. Before this action could be taken, the Surgeon General's Office successfully recommended that only such number would be so appointed as might be needed to satisfy position vacancies in any procurement objective which might be established for veterinary officers. No procurement objective existed at the time.

During November 1942, the War Department for the first time provided for the graduated students who held these appointments to be conversion-appointed as veterinary officers to satisfy current personnel procurement objectives. Between 1 January and 31 March 1943, the number of such graduates was 130, and another 287 students were scheduled for graduation and would become eligible for conversion appointment before the end of

June 1943. By the fall of the same year, there were 177 such veterinarians, including a few who were scheduled to graduate before 31 December 1943, on whom no personnel actions were taken with respect to conversions from their MAC appointments. As against these numbers of potential veterinary officers, 211 were conversion-appointed as veterinary officers during 1943—46 percent of the total veterinary officer procurements for the year. On 8 February 1943, when the procedure of appointing veterinary students as second lieutenants, MAC, in the Army of the United States was discontinued, the War Department was planning to activate the ASTP (*16*). This program placed emphasis on utilizing civilian educational facilities to train student personnel in certain professional and scientific fields at Government expense in order to assure that the Army's requirements for such personnel would be met; otherwise, the Army's requirements would have to be met, if at all, by withdrawals of personnel from the Nation's manpower who, in these fields, were becoming more and more essential to civilian industry and activity as the war progressed. The second program differed from the former program in that the participating students were enlisted (in the grade of private) in the Medical Enlisted Reserve Corps, were physically qualified for military service, and were actually ordered to active duty in the military unit which was established at the veterinary school where they continued their professional education; their tuition was paid for by the Government, and they were given the same pay and emoluments as were authorized any other Medical Department men. There was no intention to influence the standards or curricula of the Nation's civil veterinary educational system.

When questioned in regard to the need for establishing this program to supply veterinary officers, The Surgeon General, then faced with requirements for more than a thousand officers, suggested that the number of veterinary students then holding MAC officer appointments, if permitted to apply for continuance of their professional education under the auspices of the ASTP, would undoubtedly be sufficient to supply loss replacements and additional requirements for several years beyond 1943. There was little observable need to establish such a specialized training program for preprofessional veterinary students. Subsequently, on 29 April 1943, the War Department announced its intentions to begin this training for veterinarians, as well as for physicians and dental surgeons, and by mid-1943, contracts were entered into for the ASTP at 10 approved civilian veterinary schools (*18*).[2] Training was restricted to Medical Enlisted Reserve Corps students who had been accepted by the schools prior to their call to active duty (on 30 June 1943) and to those students who were inducted. By the spring of

[2] The veterinary schools were those at Alabama Polytechnic Institute, Auburn, Ala.; Colorado State University, Fort Collins, Colo.; Iowa State College of Agriculture and Mechanic Arts, Ames, Iowa; Kansas State College of Agriculture and Applied Science, Manhattan, Kans.; Cornell University, Ithaca, N.Y.; University of Pennsylvania, Philadelphia, Pa.; Agriculture and Mechanical College of Texas, College Station, Tex.; and State College of Washington, Pullman, Wash.

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1944, enlistments in the Medical Enlisted Reserve Corps totaled 1,396 students (or 80 percent of the students in approved veterinary schools), including 350 to 400 seniors due to graduate before the end of December of that year. This number included the majority of the students originally appointed as MAC officers who had been permitted to terminate their appointments in order to enlist in the new program; however, there were another 200 such officer students who retained their appointments because they were not physically qualified to enlist or were enjoying their officer status.

Shortly after the beginning of the ASTP, Headquarters, Army Service Forces, and the Surgeon General's Office jointly developed a schedule for the disposition of trainees, upon graduation or otherwise, as follows:

The training of trainees under the auspices of the ASTP would be terminated upon receipt of the degree.

Students, 60 days prior to graduation, would apply for appointment as first lieutenant, Army of the United States—the dean of the veterinary college being asked to certify the date that students would be granted their degrees. Letters of appointment would be issued by The Adjutant General, effective on the date of graduation.

Trainees appointed in the Veterinary Corps, Army of the United States, were to be discharged from their enlisted status and "ordered to active duty *only* in such numbers as may be required to meet current requirements for filler and loss replacements." This policy was soon changed (in August 1943) by the War Department without reference of the matter to the Surgeon General's Office. It then provided that: "Trainees who graduate in veterinary medicine under the Army Specialized Training Program and for whom no vacancies exist will be discharged from their enlisted status for the convenience of the Government effective the day of graduation and will be issued a certificate of capacity and subsequently appointed in the Veterinary Corps, Army of the United States, when and if vacancies become available." Essentially, the Surgeon General's Office lost control over those who graduated and were discharged, because no procedure was adopted to record the addresses at which the graduates could be reached. The Veterinary Division, Surgeon General's Office, especially desired that the graduates from the ASTP be appointed as veterinary officers and retained as such on inactive-duty status until needed. Actually, the graduated veterinarians then reverted to civilian status and returned to military service only if they volunteered or were inducted by the Selective Service System.

In October 1943, a review of the veterinary officer procurements during the previous year showed that the graduate output from the original program and the successor ASTP had not been used alone in appointing additional officers and was, and would be, in considerable excess to veterinary officer requirements. Therefore, the War Department generally curtailed veterinary officer procurement except with respect to the recently

graduated veterinarians who held MAC appointments or had participated in the ASTP. These military-obligated veterinarians, as well as veterinarians who were inducted, comprised the major source for veterinary officers during the remainder of the war period. When the surplus of military-obligated veterinarians had become evident, there were suggestions that they be transferred to the Army Ground Forces or that all be appointed as veterinary officers and ordered to duty as needed, but opposing views were taken by the Assistant Chief of Staff, G–1 (Personnel) and The Surgeon General. In consequence, the ASTP for veterinary students was brought to an abrupt halt; such training for freshman, sophomore, and junior veterinary students was terminated with the end of academic terms which had been started prior to 22 May 1944, but the senior students were authorized to continue in the program until their graduation. No veterinarian ever received much more than 1 year's professional education at Government expense under the ASTP. Of the 1,676 students who had entered into the program, 588 graduated while holding enlistment in the Medical Enlisted Reserve Corps; of the latter number, 143 only were discharged for immediate appointment in the Army of the United States—these during the period from August 1943 to December 1944. The remainder were discharged only to be brought back to active military service direct from civilian status at a later date; some volunteered or were inducted before the end of the war.

Although these veterinary student conservation programs were the subject of all kinds of criticism, there can be no question that the Army at least insured itself that its requirements for veterinarians would be met with the least possible disruption to the existing established civilian veterinary services. On the other hand, there was the question that possibly the Selective Service System could have indirectly accomplished the same effect. For example, the selective service legislation originally provided for the deferment of any students during the academic year of 1940–41 or until 1 July 1941. Then, before the expiration date of this legislatively authorized deferment, the Selective Service System set up procedures to grant 6-month deferments, with periodic renewals, to individuals who were in training or in preparation for an occupational activity which was essential to the national health, safety, or interest. Subsequently, on 12 May 1941, the National Headquarters, Selective Service System, expressly informed its local draft boards on the civilian veterinary educational system and its student input and advised that it was "* * * of paramount importance that the supply be not only maintained but encouraged to grow, and that no student who gives reasonable promise of becoming a qualified veterinary doctor be called to military service before attaining that status." During the next year, veterinary students generally seemed to escape induction into the Armed Forces because almost all held letters from the deans of the veterinary schools regarding their academic standing and intentions of continuing their professional education. However, there were a few instances where draft boards located near

the veterinary schools insisted on induction of students who were registered at their permanent residence outside of those boards' areas or in another State. In December 1942, the Selective Service System took note that the War Manpower Commission had certified veterinary students as a critical occupation, and the local draft boards were advised:

> A registrant who is in training and preparation as a * * * veterinary * * * student in a recognized * * * school of veterinary medicine * * * shall be considered for occupational classification during the period of such professional course, provided he is a full-time student in good standing in such course of study and if it is certified by the institution that he is competent and that he gives promise of the successful completion of such course of study and acquiring the necessary degree of training, qualification or skill to become a recognized * * * doctor of veterinary medicine. * * *

Actually, the value or effectiveness of the procedures and policies of the Selective Service System regarding the deferment of veterinary students was lost to the Army's own program of student conservation in which a large share of the Nation's veterinary student population had voluntarily obligated themselves to military service by gaining temporary appointment as MAC officers or by enlisting in the Medical Enlisted Reserve Corps. However, in May 1944, with the discontinuance of the ASTP and the discharge of nearly all students from their enlistment, the Selective Service System gained its first real opportunity to show its intentions to continue the flow of students through the civilian educational system. Unfortunately, just before this time, the Selective Service System began to emphasize the induction of personnel in the younger age groups and began to give less regard to occupation as a factor of student deferment than it had in the past. In fact, for about 1 week in April 1944, the Selective Service System had removed deferment status of all students who were between 18 and 25 years of age; this action, bringing chaos to the veterinary profession, threatened to empty the veterinary schools of students other than those who had voluntarily obligated themselves to military service (that is, those holding MAC officer appointments or those enlisting under the ASTP). By 11 April 1944, the Selective Service System returned to the granting of deferment status to veterinary students who were pursuing full-time courses of professional education in the Nation's recognized veterinary schools until their graduation. This situation was unchanged during the remainder of the war period, even though the students were in the age group which was especially sought for in the induction activities of the Selective Service System.

VETERINARY OFFICER PROCUREMENT

Veterinary officer procurement or development of the wartime Veterinary Corps will be described in chronological sequence of the major events and circumstances which saw its number reach a peak active-duty strength of 2,116 officers by the end of August 1945. Table 11 shows the official monthly accessions of veterinary officers for the period from June 1939

through December 1945, the last few months of this period marking the start of demobilization. Because it was composed of the variety of categories of veterinary officers, as stated previously, veterinary officer procurement obviously was a complex procedure. There were so many facets to each personnel procurement procedure that the lack of a full understanding of what was being done at times led to criticism. For example, reference may be made to the ASTP and to the subsequent disposition policy for the outright discharge from their voluntary enlistment in the Medical Enlisted Reserve Corps of the many veterinarians who received a part of their professional education at Government expense. Though the Veterinary Division, Surgeon General's Office, had recommended that the current graduates be appointed as veterinary officers and then held on inactive-duty status until needed elsewhere within the War Department, this recommendation failed to gain headway because these officers, as a great many others, were being counted against the Nation's manpower allocation to the Army. Personnel procurement procedures were also complex for the reason that the Nation's veterinary profession and its manpower potential (or students) were numerically inadequate even before the onset of World War II and would not have been able to absorb any imbalances in their distribution between the Army and the civilian activities essential to national defense. Adding to the complexity was the fact that procedures on veterinary officer procurement were not evolved by a single central office but were the results of recommendations made by the Veterinary Division, Surgeon General's Office. This Division necessarily presented viewpoints on the effects of such procedures on the civilian veterinary profession and the evaluation of such recommendations by the personnel offices within the Surgeon General's Office, the Army Service Forces, and the War Department General Staff; the views of one or the other were almost always necessarily arbitrated.

The beginning expansion of the Army Veterinary Service in World War II from its regular Veterinary Corps strength of 126 officers had its origin with Public Law 18, 76th Congress, approved 3 April 1939, and the supporting appropriations legislation. These provided for the increase on 1 July 1939 of the Regular Army enlisted strength from 174,000 to 210,000 men or, more specifically, for an expansion of the Air Corps and augmentation of the defense forces in the Panama Canal Zone. The War Department then planned a concurrent increase in the Army's officer strength, but recommendations for increasing the existing personnel authorization for the Veterinary Corps, Regular Army, were not favorably considered. Instead, within the limits of the appropriations that became available, planning centered about the ordering of Veterinary Corps Reserve officers who would volunteer for a year's tour of duty with the Regular Army. An allotment for 192 Medical Department reservists was initially authorized, and, although this made no particular reference to Veterinary Corps Reserve officers, the War Department on 13 July 1939 advised corps area commanders

TABLE 11.—*Officers ordered to active duty in the Veterinary Corps, by component, 1939–45* [1]

Date	Total	Regular Army	Officers' Reserve Corps	National Guard	Army of the United States
1939					
June					
July					
August	1	1			
September	1		1		
October					
November	1		1		
December	4	1	3		
Total	7	2	5		
1940					
January	3		2	1	
February	1		1		
March	2		2		
April	1		1		
May	2	1	1		
June	3	2	1		
July	6		6		
August	2		2		
September	11		7	4	
October	22		20	2	
November	18		12	6	
December	9		6	3	
Total	80	3	61	16	
1941					
January	41		33	8	
February	34		25	9	
1943					
January	39		8		31
February	23		5		18
March	53		4		49
April	116		9		107
May	64		5		59
June	30		2		28
July	19		1		18
August	43		1		42
September	63		2		61
October	12				12
November	40		2		38
December	9				9
Total	511		39		472
1944					
January	49		4		45
February	24		1		23
March	10		1		9
April	4				4
May	10				10
June	10				10
July	14				14
August					
September					
October					
November					
December	9				9

March	42	1	38	3	
April	43	1	41	1	
May	47		47		
June	27		26	1	
July	26		26		
August	34		34		
September	35		35		
October	42		39		3
November	38		31		7
December	24	2	16		6
Total	433	4	391	22	16
1942					
January	29		18		11
February	56	1	47	1	7
March	24		19		5
April	38		34		4
May	37		23		14
June	74		58		16
July	101		86		15
August	274		252		22
October	45		29		16
November	36		15		21
December	37		12		25
Total	805	1	608	1	195
Total	130		6		124
1945					
January	37				37
February	17				17
March	1				1
April					
May	6				6
June	10				10
July	33				33
August	31				31
September	16				16
October	3				3
November					
December					
Total	154				154
Grand Total	2, 120	10	1, 110	39	961

[1] The table does not show the return of 2 retired Regular Army officers to active duty in November 1940. The grand total under the column "Regular Army" may be augmented by 126 officers on duty as of 30 June 1939; thus, 2,120 plus 2 and 126 would indicate that 2,248 officers were ordered to active duty during the period. The table contains "official" data, but it does not reflect the data which were compiled and used within the War Department during the war period as are described in the text; furthermore, data are shown which were not available from other sources.

Source: Report OTN-337, subject: Officers Appointed in the Medical Corps, Dental Corps, Veterinary Corps, Medical Administrative Corps, and Pharmacy Corps from 1 January 1939 through February 1946. Strength Accounting Branch, The Adjutant General's Office, 3 July 1946

to solicit such officers as were under their jurisdiction who would volunteer (*19*). Ten of these officers were to be ordered to extended active duty until 30 June 1940, when the existing appropriations were legally discontinued. A few months later, at the outbreak of war on the European Continent, the President's proclamation of 8 September 1939, on the limited emergency, carried with it the expansion of the Regular Army to a new authorized strength of 227,000 enlisted men. Planning within the War Department then called for ordering 508 additional Medical Department Reserve Corps officers, expressly including 10 for the Veterinary Service, into a 1-year tour of duty with the Regular Army. However, these 10 additional Veterinary Reserve Corps officers were not ordered to such duty until sometime in early 1940 when congressional appropriations became available. This second increment of 10 Reserve Corps officers were assigned so as to release certain regular Veterinary Corps officers from their routine station duties for participation in the army corps and field army maneuvers which were being conducted during the next few months.

During February 1940, new planning within the War Department centered on further augmentation of the Regular Army to 280,000 enlisted men and on the ordering of additional Reserve Corps officers to active duty (*20*). However, on 1 July 1940, before the new plan became effective, the Surgeon General's Office, urgently needing veterinary officers to inspect the food supply which was being developed in connection with the grand four-army maneuvers taking place in the fall of the year, was granted authorization to bring a few Veterinary Reserve Corps officers for 28-day tours of duty at four Army camps. On 31 May 1940, the War Department authorized five more Veterinary Corps Reserve officers to be ordered immediately to 1-year tours of extended active duty with the Regular Army (*21*). As of 30 June 1940, the active-duty strength of the Veterinary Corps was 151 officers: 126 regulars and 25 reservists. Just before this date, planning for the Regular Army at 280,000 strength was brought to its final stage by congressional appropriations legislation, becoming effective on 1 July; 52 new personnel space vacancies were authorized to be filled by Veterinary Reserve Corps officers after the effective date. Even before this troop increase became effective, supplementary congressional appropriations legislation further augmented the Regular Army to 375,000 enlisted men (*22*).

The Surgeon General's Office in August 1940 was studying Medical Department personnel requirements for a 1½ million man force which was to be reached by mid-1941. The study placed veterinary personnel requirements for this paper army at 1,230 officers, as follows:

Planned size of Army	*Veterinary officers*
Current Regular Army (375,000 men)	404
Fall of 1940:	
Federalization of National Guard (235,000 men)	188
Induction under Selective Service (320,000 men)	246
Spring of 1941: Induction or draft (475,000 men)	392

During August and September 1940, two separate laws provided for the changeover from the so-called volunteer Army to the draftee Army which was needed for the national defense. These enactments included the one, approved on 27 August 1940, which authorized the President, as Commander in Chief, to order the reserve components of the Army of the United States into the active military service of the United States, with or without their consent, and the other, the Selective Training and Service Act of 1940, which set in motion the system for inducting or drafting men into the Armed Forces.

As the 1940–41 military program was launched, the federalization of the National Guard, during the period from 16 September 1940 to 23 June 1941, brought 37 veterinary officers to active duty. During November 1940, two retired Regular Army officers were returned to active duty with the Veterinary Corps. However, the pattern of ordering additional Veterinary Reserve Corps officers to duty was now lost in the maze of War Department allotments, reallocations, and amended ones which authorized corps area commanders, department commanders, and chiefs of the arms and services to call to active duty certain numbers of Reserve Corps officers who were under their jurisdiction for assignment. During October-November 1940, allocations were divided between the corps area commanders in the Zone of Interior for ordering 148 Veterinary Reserve Corps officers to duty in connection with the augmentation of the Regular Army to 375,000 enlisted men and for another 110 (later reduced to 60) officers in connection with the federalization of the National Guard (with more than 300,000 officers and enlisted personnel) (*23*, *24*, *25*). As of 30 June 1941, the active-duty strength of the Veterinary Corps included 435 of the Officers' Reserve Corps, 34 of the National Guard, and 128 Regular Army and retired officers, a total of 597.

During the last few months before 7 December 1941, the War Department continued its programing on the ordering of additional Reserve Corps officers to active duty. Allotments were being made which were to be filled by 30 June 1942, and they specified not only the numbers but also the numbers by grade; Regular Army officers too were included in the allotments. Of course, these allotments were constantly reviewed and repeatedly changed. At about this time, almost all allotments previously provided for the War Department overhead were converted to allotments to the new Army Service Forces (then named Services of Supply); within this command, the various chiefs of the Army technical or supply services were granted allotments for certain numbers of veterinary officers: 30 to The Surgeon General, 152 to The Quartermaster General and general depot service, 4 to the Chief Signal Officer, 2 to the Chief of Chemical Warfare Service, and 1 to the Chief of Engineers. Veterinary officers, occupying these positions, were under the direct control of the respective chief of service; the Surgeon General's Office had as much jurisdiction over them as it exercised over the hundreds of

veterinary officers who were on duty with the corps area service commands, oversea departments, Army Air Forces, and Army Ground Forces. As of 30 June 1942, the active-duty strength of the Veterinary Corps (at 952 officers) was proportionally distributed as follows: 69.3 percent with service forces, 16.2 percent with ground or combat troops, and the remaining 14.5 percent with the Army Air Forces (*26*).

Throughout this period, the reserve components of the Army of the United States were not materially augmented. The only additions to the Veterinary Corps Reserve were the veterinarians who were inducted and those who as students had been voluntarily transferred to the MAC Reserve, pending the completion of their professional education, when they would become available for conversion transfer and order to duty as veterinary officers. During the fall of 1941, pursuant to congressional legislation, the Army provided for the appointment of additional officers directly into the Army of the United States; though some few inducted veterinarians, who were then applying for Reserve Corps appointments as in the past, may have been considered as making application for appointment in the Army of the United States, this procedure was not officially prescribed until 7 months after the Pearl Harbor attack. On 6 July 1942, after a request, originating with the Surgeon General's Office, the War Department provided for an officer personnel procurement objective of 250 space vacancies in the Army of the United States that would be satisfied only by the appointment of veterinarians who might be inducted into the Army as enlisted men by the Selective Service System.

In April 1942, preceding the establishment of this procurement objective, the War Department started its program to conserve the veterinary manpower potential contained in the student bodies at the civilian veterinary schools against the action of the Selective Service System—that is, granting temporary appointments to male veterinary students in approved schools as second lieutenants in the MAC, Army of the United States (*27*). These students were retained on inactive-duty status, free from the Selective Service System, until completion of their education when they became eligible for conversion transfer and order to active duty as veterinary officers. Those who graduated and failed to gain conversion transfer within 3 months were discharged from their appointments in the Army of the United States. However, lacking information that might show otherwise, it is believed that not many of such graduated veterinarians were conversion transferred and were brought into the Army until after November 1942.

Since not as many veterinarians were inducted into the Army as had been anticipated, this source fell far short of filling the existing procurement objective of 250 and the increasing requirements for Army veterinary officers. By November 1942, a little over 100 officer appointments were made in the Army of the United States from inducted veterinarians, and the Veterinary Officers' Reserve Corps was now practically depleted. There remained only 28 physically disqualified personnel not on active duty. On 17 November

1942, the Surgeon General's Office requested the War Department to cancel the unexpended portion (or 146 personnel space vacancies) in the current procurement objective for veterinary officer appointments in the Army of the United States and to provide for a new objective, without restriction on the personnel sources and in some few grades higher than that of first lieutenant, totaling 1,124 space authorizations. These changes were believed to be necessary to satisfy the increasing requirements for veterinary officers, to obtain veterinarians direct from civilian life who were specially qualified and for whom appointments in the higher grades would be made, to provide for the appointment of inducted veterinarians who could be inducted into the Army as enlisted men as in the past, and to provide for the conversion appointment of newly graduated veterinarians who were completing their professional education while holding appointment (on an inactive-duty status) as second lieutenants in the MAC, Army of the United States. In two successive actions taken during November 1942, the War Department amended the 6 July 1942 procurement objective by removing the restriction (concerning inducted veterinarians) for filling the unexpended 146 personnel space vacancies and by supplementing it with an additional 978 space authorizations (*28, 29*). As of 31 December 1942, the Veterinary Corps active-duty strength totaled 1,532 officers, comprising 126 of the Regular Army, 2 retired officers recalled to duty, 35 of the National Guard, and 1,369 of the Officers' Reserve Corps or appointees in the Army of the United States—the latter including 180 formerly inducted veterinarians.

During 1943, the program of conserving the students in approved veterinary schools against the threatening induction action by the Selective Service System was discontinued to the extent that additional MAC appointments could not be made after 8 February 1943. In its place, by 1 July 1943, a veterinary specialized training program was established at the approved veterinary schools in the United States; its object was to insure that sufficient numbers of students would be educated (at Government expense) and graduated to meet the Army requirements for veterinarians. In fact, the numbers of graduates and students in veterinary medicine, having then, or sometime in the future, an obligation to serve in the Army, soon became numerically excess to the immediate Army needs. The surplus was increased rather than diminished because the Surgeon General's Office and the Officer Procurement Service had emphasized the procurement, since the winter of 1942–43, of veterinarians direct from their civilian status. In the fall of 1943, the War Department General Staff had cause to inquire into the veterinary officer procurement situation, particularly, with respect to reasons for not more fully using those sources of personnel who had certain obligations to the Army, as follows (*30*):

> A few months ago this Division was advised by The Surgeon General that since the Army had more veterinarians than required it would not be possible to order to active duty and properly employ any material number of veterinarians who hold reserve commissions. In spite of this it is noted that appointments from civil life and from the

enlisted ranks are still being made in the Veterinary Corps. If the requirements have been met, there appears to be no justification for continuing to appoint veterinarians. If there is still a shortage, requirements should be met by using veterinarians commissioned in the Reserve Corps [sic] who are graduating from colleges. In this connection it is noted that the ASTP has 1,399 students enrolled in veterinary courses.

At about this time, the Veterinary Corps strength was 1,981 officers, new appointments having been given during the past 7 months (or from March through August 1943) to 39 veterinarians who were inducted into the Army as enlisted men and to 110 veterinarians direct from civilian life. The Veterinary Reserve Corps was depleted. However, there was a potential source of 362 veterinarians by the end of 1943, as follows:

Appointments in Medical Administrative Corps, Army of the United States:
- Recent graduate veterinarians under current option for call to active duty___ 70
- Veterinary students expected to graduate prior to 31 December 1943_____ 107

Enlisted in the Army Specialized Training Program:
- Recent graduate veterinarians under current option for call to active duty___ 13
- Veterinary students expected to graduate prior to 31 December 1943_____ 172

The Army Service Force Headquarters, which had compiled this information on veterinary officer procurement, then suggested that these individuals be commissioned in the Army of the United States as veterinary officers but retained on inactive-duty status until required. However, in a review of its operations and policies, the Veterinary Division, Surgeon General's Office, advised (*31*):

After the Veterinary Corps Reserve had been substantially all utilized, additional requirements have been met by commissioning from the following categories and reasons therefore are indicated:

(a) Inducted Veterinarians. With an overall shortage of veterinarians in the United States it is highly important in the interest of our livestock and dairy industries to conserve veterinary talent. The commissioning of the qualified veternarian who is not deferred by his draft board but inducted into the Army saves taking one from civil life or releases a new graduate for civil use.

(b) New Graduates Holding Medical Administrative Corps Commissions. Conversion commissions have been granted as many of these graduates as existing or anticipated vacancies permitted, giving equal consideration to all accredited colleges, the relative proficiency of graduates, and further considering the necessity of making some appointments of individuals who have had post-graduate experience or special training.

(c) Civilian Veterinarians. It has been necessary and desirable to meet a proportion of new requirements by the appointment of some veterinarians from civil life. Such appointments have been made to meet requirements during periods between graduating classes or when the number of individuals it is desired to appoint from a particular graduating class or classes is insufficient to meet immediate needs. Then, many requisitions for veterinary officers, especially from overseas theaters, are for individuals who have had considerable post-graduate experience in various phases of meat, meat-food and dairy products inspection activities. Further, it is essential to obtain a number of veterinarians with training and experience in various other specialties in the veterinary field. These cannot all be met by the recent graduate.

(d) A.S.T.P. Graduates. It is contemplated that with the exception of the appointment of a few veterinarians from civil life with post-graduate experience and training in veterinary specialties, the greater percentage of future vacancies will be filled by the appointment of graduates trained in veterinary medicine under the Army Specialized

Training Program. There will probably still be a few inducted veterinarians who, for the reasons indicated in (a) above, should be considered for commissions.

* * * * * * *

With regard to future requirements for veterinary officers it is well nigh impossible to estimate future needs with any degree of accuracy. This is because it is not simply a case of estimating under approved Tables of Organization for tactical units or on the basis of so many veterinary officers per thousand troops. Veterinary officers requisitioned for food inspection activities are frequently called for in irregular numbers, based on local situations. This is especially true in foreign theaters but likewise applies to a considerable extent in the United States. In order, therefore, to meet requirements as they arise and not have a large surplus of officers in pools for which vacancies may not develop within a reasonable time, it has been the policy of this office to recommend for commission and immediate active duty relatively small groups at irregular intervals. It is believed that this plan should be continued.

As this inquiry was coming to a close, the Secretary of War ordered a general cessation of procurement of officer personnel direct from civilian life; however, exceptions were specifically provided in the instance of physicians, dentists, chaplains, pilots, and individuals with outstanding qualifications and experience in special fields (*32*). As might be expected, the War Department on 26 October 1943 canceled the existing procurement objective for additional veterinary officer appointments except to provide: (1) For a one-time and last-time opportunity for the conversion appointment of 177 veterinarians and students scheduled to graduate before 31 December 1943, who were holding MAC appointments; (2) for continuing the existing policies relating to the discharge or appointment of students graduating while under the auspices of the ASTP; (3) for appointing inducted veterinarians; and (4) any civilian veterinarian with special training or unusual experience not possessed by recent veterinary graduates and whose procurement was approved by the Assistant Chief of Staff, G–1 (Personnel) of the War Department. By the end of December 1943, the active-duty strength of the Veterinary Corps totaled 2,039 officers, which was a net gain of more than 500 personnel since 31 December 1942. During 1943, 62 Veterinary Reserve Corps officers were called to active duty, and officer appointments were recommended by the Surgeon General's Office for 462 veterinarians (although 916 applications were processed). These included 46 who had been inducted, 221 holding original appointments as MAC officers, 80 graduating while under the auspices of the ASTP, 104 veterinarians direct from civilian status, and 11 veterinarians who were commissioned in some branch of the Army other than the Medical Department. Most of these appointments were made during the earlier part of the year or prior to the 26 October 1943 cancellation of the veterinary officer procurement objective. During the next year (January through December 1944), veterinary officer appointments totaled only 73.

The personnel directive of 26 October 1943 governed veterinary officer procurement for more than 14 months or until December 1944. The 150 to 160 appointments which were made during this time sufficed to keep the Veterinary Corps strength at little more than 2,000 officers and were generally

limited to graduate veterinarians who as professional students had held commissions in the MAC and to those who had completed their professional education while under the auspices of the ASTP. In answer to an application for 83 additional veterinary officers, by the Surgeon General's Office during November 1944, the War Department General Staff on 12 December 1944 authorized the appointment of 52 more veterinary officers in the grade of first lieutenant in the Army of the United States but expressly defined the sources of these as follows:

a. Those enlisted men and forthcoming graduates of Army Specialized Training Program whom The Surgeon General considered best qualified for appointment.

b. Veterinarians from civil life, holding inactive Medical Administrative Corps commissions as second lieutenants. Appointment will not be made from this category unless there is a shortage of qualified personnel designated in the preceding paragraph *a*.

Twenty-two recent graduates who had participated in the ASTP and 30 inducted veterinarians were appointed in the Veterinary Corps, Army of the United States, to fill this personnel procurement objective.

Actually, as the new personnel authorization was below Army needs, the Surgeon General's Office again, in mid-January 1945, restated the current shortages in the Veterinary Corps as numbering 139 officers (*33*, *34*). Three months later, on 14 April 1945, the War Department answered the request with a procurement objective authorization to attain and maintain a personnel ceiling at 2,150 veterinary officers as long as the Army was at a strength of 7.7 to 8.2 million personnel. The ceiling was the first to be established for the Veterinary Corps during the war. Under this ceiling, appointments were to be made, in the grade of first lieutenant, of personnel from the following prescribed sources, with priority in the order listed:

Those warrant officers and enlisted men whom The Surgeon General considers best qualified.

Graduates of approved veterinary schools who were not appointed in the Army of the United States for assignment to the Veterinary Corps due to lack of position vacancies and future graduates holding Medical Administrative Corps appointments. These categories will be considered in the following order with priority of consideration based upon order of graduation, provided proper clearance is obtained from the Procurement and Assignment Service of the War Manpower Commission on those who no longer hold commissions:

(1) Graduates of the Army Specialized Training Program, discharged from the service in 1944.

(2) Individuals formerly holding appointments as Second Lieutenant, Medical Administrative Corps, who graduated prior to November 1944 and who subsequent to graduation were discharged from their commissions.

(3) Individuals holding appointments as Second Lieutenant, Medical Administrative Corps, Army of the United States, who graduated during November and December 1944 and January 1945.

(4) Individuals holding appointments as Second Lieutenant, Medical Administrative Corps, Army of the United States, who will graduate during 1945 and 1946.

Every possible effort was made to satisfy the new personnel ceiling immediately, but the restrictions on sources of veterinarians and the lack of up-to-date information on the addresses of those who had been discharged earlier from their MAC appointment and the Medical Enlisted Reserve Corps only resulted in failure. Between January and June 1945, only 33 new veterinary officer appointments were made. Actually, the numbers were urgently required because, pursuant to the agreement reached during February 1945 between the Secretary of War and the War Food Administrator, veterinary officers were to be deployed on inspection work in meat packing plants which was needed to improve the Army meat supply situation but for which the Nation's civilian meat inspection agency could not provide inspection personnel. This interagency agreement for such veterinary officer utilization was urged on the Army by the Director of Economic Stabilization, concurred in by the Office of Marketing Services, War Food Administration, and endorsed by the Quartermaster Corps which by that time was the procuring agency of meats for all of the Armed Forces and was experiencing supply shortages. Along with the difficulties being experienced by the Surgeon General's Office in procuring the needed veterinary officers, The Adjutant General, on 17 May 1945, asked The Surgeon General to investigate the need for continuing the ceiling of 2,150 veterinary officers—the results of such study to be submitted to the Assistant Chief of Staff, G–1 (Personnel), War Department General Staff, before 13 June 1945; otherwise, the unexpended position vacancies in the authorized objective would be canceled (*35*). The Surgeon General was also advised: "It is believed with the cessation of hostilities in Europe, the need for Veterinary Corps officers will be materially reduced, if not completely eliminated."

The Veterinary Division, Surgeon General's Office, recommended both a modification of existing restrictions on the sources of officer procurement and an increase, rather than a cancellation, in the personnel ceiling to a new total of 2,237 personnel space authorizations. The Surgeon General, in his reply to the Assistant Chief of Staff, G–1, on 29 May 1945, noted that:

> The requirement for Veterinary Corps officers is not proportional to the military strength of the Army particularly in reference to their duties in connection with the procurement of foods of animal origin. This requirement for Veterinary Corps officers is based on the amounts of these items procured by the Army both for military needs and food for liberated countries.
>
> The procurement by the Army of food items subject to veterinary inspection has not been reduced following V–E Day, but maintains a high level.
>
> The requirement for veterinary officers was not proportional to the military strength of the Army particularly in connection with food procurement inspection service.
>
> The Quartermaster Corps food procurement program for the Armed Forces and emergency civilian feeding in liberated countries was being increased both in respect to quantities and to geographical distribution of sources.

The War Food Administration and the War Department agreement for Army veterinary inspection in meat processing plants which could not be supervised by the Federal Meat Inspection Division because of the latter's shortages in personnel was to become operational.

The Assistant Chief of Staff, G–1 (Personnel), inserted into the record at this time that it was "* * * considered contrary to established War Department policy to commission qualified civilian veterinarians in the Army of the United States to perform duties which do not require military status," but somewhat earlier, the same office had refused to release veterinary officers to the Federal meat inspection agency. In any event, on 13 July 1945, the War Department granted authorization to The Surgeon General—in line with the recommendations—to procure qualified veterinarians for appointment as first lieutenant in the Veterinary Corps, Army of the United States, in order to attain and maintain a personnel strength of 2,327 officers; the sources of supply were defined as follows (*36*):

Warrant officers and enlisted men whom The Surgeon General considers best qualified.

Graduates of approved veterinary colleges who graduated subsequent to 1943 and were not appointed in the Veterinary Corps due to lack of position vacancies, preference being given to graduates of the Army Specialized Training Program, discharged from the service in 1944, whose present addresses are unknown, provided proper clearance is obtained from the Procurement and Assignment Service of the War Manpower Commission.

When a need occurs for the appointment of veterinarians with special training and unusual experience which recent graduates do not possess, appointments will be made from veterinarians in a civilian status, after presenting the case to the Assistant Chief of Staff, G–1, for decision.

The war soon ended and the authorized ceiling strength was not reached. In fact, on 2 September 1945, all unexpended position vacancies in existing procurement objectives were canceled (*37*).

Postwar Demobilization

At about the time that the Army Veterinary Service reached its peak officer strength, the Army was undergoing a partial demobilization following the victory in Europe and the change to the one-front war against the Japanese. This reduction in force was complicated by beginning programs of redeploying troops from the Mediterranean and European theaters to the Pacific, replacing personnel in the active theaters by those who had not seen oversea duty, and the continuing assignments to maintain the postwar Army. Thus, the period of partial demobilization saw a few veterinary animal service units in the Mediterranean theater inactivated to provide personnel for the veterinary food inspection detachments which were to be redeployed to the Pacific theater and the beginning reduction in force in the European theater, but actually there were few separations of individual veterinary officers anywhere. Personnel were needed until such time that the Army was relieved of its food procurement contracts, stockpiles of subsistence, and holdings of

animals. In addition, the Veterinary Corps at the time was actually below stated requirements. The sudden capitulation of the Japanese brought an end to the program of redeployment and changed the slow rate of separations under the program of reduction in force to one of rapid, full-scale demobilization.

Separation schedules were then developed on the basis of age and a numerical score, named "adjusted service rating"—the latter including a prescribed number of point credits which were granted for such factors as length of service, length of time overseas, combat activity, decorations, and number of dependents. Thus, veterinary officers 50 years of age or older or having an adjusted service rating of 110 were included in the first group of postwar separations. In time, these criteria were changed (or lowered), and length of service was soon added as a third factor. Thus, in mid-September, the War Department was releasing veterinary officers, if 42 years of age, who had a point score of 80 or more, or had seen military service prior to 1 January 1941. Officers who were declared essential to the Army in their places of current assignment could be retained until a specified date but were to be released earlier if replacement personnel arrived. During November 1945, new separation criteria were announced which lowered the adjusted service rating score to 70 points and reduced the period of military service to that of duty prior to 7 December 1941. By the end of the year, an estimated 730 veterinary officers had been separated from the Army since V–E Day. By the end of June 1946, such separations totaled 1,500 officers, and 270 more personnel were released during the next 6 months. As of 28 December 1946, the Veterinary Corps strength was 695 officers.

PERSONNEL MATTERS

Officer procurement, as described previously, was only one facet of Veterinary Corps personnel administration during World War II. There were many other problems, such as the determination of requirements, military occupational classification, promotion, professional standards and standards of conduct, protective status, awards, and personnel losses (or attrition). Before veterinary enlisted personnel are discussed, brief mention is also made of female veterinarians in the Army, civilian employees, and the nonprofessional officers who were detailed to duty with the Army Veterinary Service.

Determination of Requirements and Assignments

The regulations of the Army in 1942 provided a basis for estimating requirements but only in the terms of determining the needs of, or assignments to, Army camps or posts, as follows (*38*):

a. To a station having an animal strength of 200 or more, a station veterinarian may be assigned if available, and where the number of animals exceeds 600, additional veterinary officers as assistants to the station veterinarian, as available, are authorized as follows:

Total animal strength, 601 to 1,100, one assistant.
Total animal strength, 1,101 to 1,600, two assistants.
Total animal strength, 1,601 to 2,200, three assistants.
Total animal strength, 2,201 to 2,800, four assistants.
Total animal strength, 2,801 to 3,500, five assistants.

b. A station having a human strength of approximately 1,000 will be allowed one or more veterinary officers, as circumstances warrant, for duty in connection with meat and dairy hygiene, the maintenance of instruction courses, or other duties pertaining to the veterinary service. At depots, ports of embarkation and debarkation, purchasing points, and other places where foods of animal origin are purchased, stored, or handled by the Army, the assignment of veterinary officers will be based on actual need as determined by The Surgeon General.

In fact, almost all requirements would have had to be made by the assignment of individual veterinary officers, and indeed, at times, this was actually done. The ratios of 0.25 to 0.27 veterinary officers per 1,000 Army Strength were computed after the end of World War II; that is, they were accomplished facts. Though troop strength was satisfactorily used by nearly all of the Medical Department professional corps in determining their requirements, it was valueless in the computation of the Army's total needs for veterinary officers. For example, this basis was entered into military planning, during 1940–41, for bringing veterinary Reserve Corps officers to active duty in connection with the augmentation of the Regular Army, federalization of the National Guard, and early training of the selectee Army, but the ratio that was then used (0.65 veterinary officers per 1,000 troop strength) would have eventually created a demand for more than 5,000 veterinary officers when the Army reached its peak strength. Animal strength, though used in the ratio of 2.5 officers per each 1,000 Army horses and mules during World War I, also lacked much the same quality for justifying requirements in the modern motorized Army of World War II as did troop strength, except that it would have created an officer understrength in the Veterinary Corps by about one-third.

The lack of a single basis to determine overall veterinary officer requirements caused justifiable concern in the upper echelons of military planning at first, but later the situation was accepted after a better understanding of the reasons. There was no question, however, that the use of animals did influence veterinary officer requirements in some theaters during World War II and that troop strength, particularly ration strength, could be used also to determine veterinary officer needs in these and other theaters where the surveillance inspection of the food supply was a major veterinary activity. The last-named basis closely paralleled the Army's food supply during its storage and distribution by the Quartermaster Corps and shipment by the Transportation Corps. However, the least understood factor was the need for veterinary officers in numbers to provide an inspection service paralleling the Quartermaster Corps food procurement activities, especially when these activities were expanded, as they were, to include the supply for all of the Armed Forces or when the Nation's food control and economic agencies

advised the Army to extend its procurement activities to new sources of supply. Sometimes, foods were procured in the oversea theaters and foreign countries; generally, four times as many veterinary personnel were required there as when the Army food supply for the Armed Forces overseas originated from the Zone of Interior.

Actually, veterinary officers engaged in food procurement inspection were urgently needed ahead of the buildup of, and thus, in proportionally greater numbers than indicated by, the strength of troops for which food stockpiles had to be developed and then moved to the areas of distribution. Much the same situation prevailed during the immediate postwar period when a large number of veterinary officers had to be retained until subsistence contracts could be terminated and the large stockpiles transferred from the operational control of the Army. In fact, as the partial result of such personnel needs to support food procurement activities, the veterinary officer-Army strength ratio ranged between 0.31 and 0.41 per 1,000 strength, during the first 6 months after Pearl Harbor, and as much as 0.39 per 1,000 during the immediate postwar period; between these periods covering the greater part of the war, this proportion was somewhat less.

The proportionate assignments of veterinary officers in the Zone of Interior, with the Army Air Forces, and to the oversea theaters were constantly changed as the war progressed. As of 30 June 1939, the regular Veterinary Corps was largely assigned in the Zone of Interior with only 17, or 13.5 percent, of its officers overseas in the Panama Canal, Hawaiian, Puerto Rican, and Philippine Departments. The percentage became considerably less in 1940–41, during the prewar emergency periods, when the mobilization and training of the wartime Army was launched in the Zone of Interior. These troops, including veterinary officers, after the Pearl Harbor attack, were then deployed, in gradually increasing numbers, to the Pacific theaters to stem the Japanese onslaught and later to the North African shores and Normandy beachheads. By October 1943, the oversea percentage had increased to include 338 officers of the total number, or 17.2 percent, of Veterinary Corps officers. By April 1945, the oversea veterinary officer strength reached a wartime peak of approximately 35 percent; at this time, the number of veterinary officers (707), in proportion to the oversea total Army strength, was 0.12 per 1,000. It is rather significant that some theaters, such as the Pacific and Asiatic areas, had relatively larger numbers of veterinary officers than seemed to be warranted as contrasted to other theaters, such as the European which had by far the greater share of the U.S. Army troop strength. However, in the former theaters, the veterinary officers were needed in numbers above the level of food surveillance in order to satisfy the needs of Allied military forces and food procurement activities.

In regard to veterinary officers who were assigned to the Army Air Forces, their number reached a peak of approximately 355 in August 1944, approximating 17.5 percent of the total number of Veterinary Corps officers.

At that time, the veterinary officer-Air Force strength ratio was 0.1 : 1,000. Only 8.2 percent of these officers were overseas.

Occupational Specialty and Professional Classification

Closely related to assignment actions was the classification of individual Veterinary Corps officers according to the prescribed MOS (military occupational specialty) in which they seemed to be best qualified. In fact, by the end of the war, veterinary officers were being requisitioned by a coded MOS number. In 1943, 11 special military jobs were defined for them as follows:

Veterinary Officer (3200)
Veterinary Officer, Large Animal (3201)
Veterinary Officer, Small Animal (3202)
Veterinary Officer, Staff (3203)
Veterinary Officer, Remount (3205)
Veterinary Unit Commander (3207)
Meat and Dairy Products Inspector (3221)
Meat Products Inspector (3222)
Dairy Products Inspector (3223)
Food Chemist (3224)
Veterinary Laboratory Officer (3231)

This classification procedure, on paper, possessed promising features for the better placement of veterinary officers in military assignments for which they might be especially qualified by prior experience or civilian education. In practice, it was a failure, but perhaps some of this was due to the fact that classification of occupational jobs in the Army was started so late during the war period. For example, the majority of veterinarians entering the military service were qualified animal practitioners and were thus eligible for assignment of MOS 3201 or 3202; on the other hand, the Army needs for such personnel were relatively small, as contrasted to the requirements for veterinary officers as meat or dairy inspectors. Also, by 1943, the Veterinary Corps was approaching its peak strength. Any effectual reclassification of veterinary officers at this time which might have been based on surveying their premilitary acquired skills would have led to reassignments—costly in terms of the time needed to transfer them—and the removal of others from assignments in which the individual veterinary officer had already demonstrated his ability and capability to the satisfaction of the immediate commander.

Promotion

The beginning of World War II found the rank of Veterinary Corps officers on active duty distributed through the grades of colonel, lieutenant colonel, major, captain, and first lieutenant, and in such proportions as had developed under the peacetime system of promotions pursuant to con-

gressional legislation. After 1920 when the regular Veterinary Corps was largely made up of lieutenants and captains, the Veterinary Corps, Regular Army, had now developed—under the provisions of a time-in-grade system of promotions—into a corps of lieutenant colonels. This maldistribution of the upper grades was lessened during the prewar emergency periods with the ordering of the Officers' Reserve Corps and National Guard into active military service; new appointments and temporary promotions into the Army of the United States also soon brought the grade distribution of Veterinary Corps officers to more nearly equaling that of the arms and other service branches of the Army. Overall, however, this grade distribution was less favorable than that for the Medical Corps, but it was generally better than that of the entire Army, particularly, in the upper grades.

The wartime Army Veterinary Service did not include Veterinary Corps officers holding the grade of second lieutenant. On the other hand, during World War II, for the first time in the history of the Veterinary Corps, one veterinary officer gained temporary appointment as brigadier general in the Army of the United States. This promotion, made effective on 9 March 1942, was tentatively set forth in prewar planning for mobilizing the Veterinary Division, Surgeon General's Office, to include one brigadier general as divisional chief (*39*). Of course, with the retirement of this general, in January 1946, the space authorization was vacated.[2]

The wartime promotion system, or temporary promotions in the Army of the United States, actually received its start during the prewar emergency periods. At this time, it was limited more or less to temporarily advancing the grades of Regular Army officers (without vacating their permanent grades) so that they could have rank commensurate with that held by the Reserve Corps and National Guard officers who were then being ordered to extended active duty with the Regular Army (*40*, *41*, *42*, *43*). These promotions of Regular Army officers by their temporary appointment in a higher grade in the Army of the United States were made pursuant to the National Defense Act, as amended, and military appropriations legislation. In January 1942, the War Department replaced the earlier procedure with one in which Reserve Corps and National Guard as well as Regular Army officers could all gain advancement to the higher grades, and it was equally applicable to those who were initially appointed as officers in the Army of the United States (*44*). Conditions governing such promotions included: time-in-grade prerequisites before becoming eligible for promotion, the earned merits of the individual, the need for recommendation by the senior officer, and the existence of a personnel space vacancy in the next higher grade.

In practice, the temporary promotion system that was established was not without its faults. Frequently, promotions seemed to be gained only by those who were at the right place at the right time, and the rates of

[2] Following World War II, both the grade of second lieutenant and that of brigadier general were restored to the Veterinary Corps—pursuant to the Officer Personnel Act of 1947—but later, in 1954, by amendment to that law, the grade of second lieutenant was again dropped.—J. B. C., Jr.

promotion for veterinary officers in one command or theater were not comparable to the rates of promotion in another. In some areas, senior veterinary officers hesitated to release eligible personnel, whom they found to be satisfactory, for reassignment into places having position vacancies of higher grades, and undoubtedly some of the same eligible personnel were satisfied with their current assignment rather than risk transfer where chances of promotion were greater. In the veterinary and other units, which were organized under the provisions of War Department tables of organization, the veterinary officers could not be promoted to grades higher than those prescribed, regardless of the length of their assignments. Promotions of officers belonging to the non-Regular components of the Army of the United States to the grades of lieutenant colonel and colonel were relatively few in number, but this was no reflection on their efficiency nor one for criticism that promotions in the higher grades were reserved for the regular Veterinary Corps. The facts were that the latter was already topheavy with rank before the temporary promotion system was begun and that there was so little attrition of Veterinary Corps officers during the war period.

A specific promotion problem concerned veterinary officers who held the grade of first lieutenant, but this did not evolve until after War Department Circular No. 122 of 1943 had provided for the promotion of almost all Medical and Dental Corps officers of this grade to captain. The War Department did not believe that the Veterinary Corps was experiencing any serious promotion inequality such as was being imposed among the many lieutenants of the other two Medical Department professional corps who were assigned to tactical units and to service installations (*45*). In opposition to this opinion, however, The Surgeon General showed that approximately 180 veterinary officers in the grade of first lieutenant were then assigned to at least 13 kinds of non-Medical Department units under approved tables of organization but that there was essentially no opportunity for the promotion of these officers, irrespective of their length of service, qualifications, or manner of performance of duty. In August 1944, pursuant to AR (Army Regulations) No. 605–12, existing position vacancies in tables of organization or allotments for veterinary officers in the grades of first lieutenant, captain, or both, were considered as position vacancies in the grade of captain. This soon resulted in the temporary promotion of many lieutenants in the Veterinary Corps; by the end of 1944, its number of captains exceeded that of the lower grade for the first time during the war period.

Shortly after V–J Day, the War Department, in a gesture to improve public relations with the officers who were being separated from the military service, inaugurated a different kind of a mass promotion system. Non-Regular veterinary officers below the grade of colonel were granted a one-grade promotion, coincident with their separation, if they had seen at least 2 years' active service since 16 September 1940 but had received no promo-

tion, or if they had served time in grade for 18 months as first lieutenant or 24 months as captain or major, or 30 months as lieutenant colonel (*46*, *47*). Undoubtedly, some refused the separation promotion from captain to major because personnel in the latter grade did not receive the muster-out pay which was granted to those holding the rank of first lieutenant and captain. These promotions were temporary, were made in the Army of the United States, and were to expire 6 months after the end of the emergency period.

Professional Standards, Standards of Conduct, and Nonprofessional Utilization of Veterinary Officers

Prerequisite to their appointment, veterinary officers were required to have graduated from a civilian veterinary college which was acceptable to The Surgeon General. The number of such colleges in the United States during World War II totaled eight, and there were another two in Canada. Little difficulty was experienced with individuals who had graduated from veterinary schools outside of the United States and Canada which failed to meet the educational standards established by the American Veterinary Medical Association and were thus disapproved by The Surgeon General.

As to their standards of conduct, veterinary officers had to be particularly reserved in their relationships with the civilian contractors furnishing foods to the Armed Forces. Actually, during World War II as in the period before it, there were no definitive rules for the conduct of veterinary food inspection personnel such as were developed later. However, there were no available records to show that Army inspection personnel were involved during the war in major irregularities or deviations from their duties to protect the financial interests of the Government by determining that the quality of the product complied with the contract requirements. Another standard of conduct pertained to professional practice by individual veterinary officers; that is, caring for and treating animals which were not owned by the Government. This standard seems to have originated sometime after World War I and was changed from time to time thereafter. For example, in 1920, the War Department granted approval to the following recommendations by the Veterinary Division, Surgeon General's Office, published in Veterinary Circular Letter No. 59:

> 1. It is deemed a desirable policy not to discourage veterinary officers of the Army in the practice of their profession amongst civilian animals, provided that such practice does not interfere with the performance of military duties, that it does not entail expense to the Government or the expenditure of military supplies, and that no veterinary officer maintains an office outside his military station * * *.
>
> 2. Attendance on cases outside the military service has a tendency to keep these officers in touch with the general conditions regarding animal sanitation in their immediate locality, and also gives them experience in cases whch is not usually obtained in the military service, in this way broadening their professional field and increasing their general value to the Army.

In 1942, this statement of policy was replaced by a new one which was set forth in AR 40–2005, as follows:

7. *Veterinary attendance.*—Veterinary officers on duty will attend all public animals and the authorized private mounts of officers; also, when practicable, other animals and pets actually owned and kept by officers, enlisted men, company messes, exchanges, and like organizations; and, at stations or in the field, where other veterinary attendance cannot be procured, civilian-owned animals employed or maintained on the reservation.

8. *Private practice of veterinary officers.* a. If citizens in the neighborhood of a military post or the residence of an Army officer desire the professional services of such officer, and the attendance of a private practitioner acceptable to them cannot conveniently be obtained, it is regarded as not inconsistent with the regulations governing the Army for such officer to render his services when this does not interfere with the proper performance of his official duties. Private or civilian practice by Army veterinary officers in civilian communities, the needs of which can be met by civilian practitioners, will ordinarily be restricted to consultation practice with such civilian practitioners, and to emergency veterinary medical or surgical work necessary to save life or limb, or prevent great suffering for which civilian practitioners are not immediately available. b. The establishment of an office for the purpose of engaging in civil practice is prohibited.

This policy was continued in effect through World War II. In addition, there were other regulatory controls, such as those concerning the monetary charges that would be made if Government medical supplies were used (to cover the costs thereof) and for the handling of the monies which might be collected, including reimbursement to the Government.

Another subject that concerned the veterinary professional man in the Army was his utilization in a nonprofessional capacity. Conceivably, as an officer of the Army, the Veterinary Corps officer was required to serve in certain staff capacities and as part-time administrator over the operations of the Army Veterinary Service concurrent with his professional activities; also, he had an obligation to serve at times on courts-martial and boards of officers. However, the full-time deployment of any veterinary officer in a nonprofessional capacity could not be condoned, and where this existed, for any great length of time, the individual veterinary officer could most often blame himself for the situation. It was commonly experienced that veterinary personnel were usually so preoccupied with the military veterinary service within their areas of responsibility that commanders and surgeons had little cause to assign extracurricular duties to them. Probably, the greatest misuse of veterinary personnel occurred, during the earlier war years, when some few arrived in the oversea replacement pools and could not be immediately assigned to veterinary duty because of lack of position vacancies.

Protective Status Under Rules of Land Warfare

Though an integral component of the Medical Department since 1916, the Army Veterinary Service was not granted protective status, or those benefits that are accrued by noncombatant personnel pursuant to the Geneva Conventions or international rules of land warfare. Thus, it is not surpris-

ing that Army regulations, as early as World War I, referred to the wearing of pistols by veterinarians in the Army, and, that in January 1918, Army general orders authorized issues of personal firearms to veterinary enlisted men. Unfortunately, the War Department tables of allowances in the mid-1920's failed to make mention of pistols and ammunition (for training) for veterinary personnel so that this became, in 1927, a major reason for the Veterinary Division, Surgeon General's Office, to recommend against such issues to a veterinary company unit. These recommendations were favorably upheld by The Adjutant General. A few years later, the Geneva Red Cross Convention in a new ruling provided that sanitary or medical formations or establishments were not to be deprived of protective status if "* * * there is found in the formation or establishment personnel or materiel of the veterinary service which does not integrally belong to it" (*48*). In other words, the Army Veterinary Service was an unarmed combatant—unarmed pursuant to War Department policy but regarded generally as combatant under international convention.

Throughout this period, protected Medical Department personnel in field training or maneuvers were identified, by wearing on the sleeve of their uniforms, a white armband bearing a red cross. The Medical Department supply catalogs itemized this as: Brassard, Geneva Convention. Upon discretion of the surgeons of various commands, it is probable that individual veterinary personnel who were engaged in sanitary inspections of food supplies or attached to medical units wore the same brassard and, of course, were unarmed. The same occurred during World War II. (On the other hand, after the early 1920's, veterinary units and hospitals engaged in animal service were specially identified at station in the field with a guidon, green cross, and their veterinary ambulances and transport equipment were marked with a Greek cross in green on a white background.) On 20 August 1940, by amendment, the current Medical Department supply catalog added the following item: Brassard, Veterinary Corps: Green Cross. This was a white armband bearing a green cross. During the next year, the veterinary brassard was described in Army training manuals for the soldier, as well as in Army regulations regarding uniforms; one regulation expressly provided that this brassard would be worn "by members of the veterinary service assigned to theaters of operations." Thus, veterinary personnel were to be separately identified from other Medical Department personnel. As a matter of fact, the training manual for Medical Department soldiers that was promulgated in 1941 emphasized this with a statement on their protective status under the Geneva Red Cross Convention, as follows: "Medical troops, installations, and equipment are to be protected *so long as they are not used to commit acts injurious to the enemy.* This protection is extended to the dental, *but not to the veterinary service.*"

Shortly after Pearl Harbor, the Commanding General, Third U.S. Army, then located at San Antonio, Tex., recommended to the Army Ground Forces that veterinary tables of unit equipment and pertinent Army regulations be changed to permit the arming of veterinary personnel and their training in the use of personal sidearms. These recommendations found acceptance with the Veterinary Division, Surgeon General's Office. Subsequently, by mid-1942, tables of allowances provided personal arms for Veterinary Corps officers. Veterinary enlisted personnel were not armed at first because some few were of the opinion that they, in a general sense, were Medical Department personnel who could not be considered for arming. In January 1944, the Veterinary Division, Surgeon General's Office, recommended that certain types of veterinary units be provided with carbines (one for each enlisted man) and pistols (one per officer) together with machineguns, grenades, and rocket launchers for the large units. The Military Training Division, Headquarters, Army Service Forces, obtained a legal opinion on the protective status of Army veterinary personnel from the Judge Advocate General's Office, dated 15 February 1944.

On 23 February 1944, the War Department policy governing the armament of personnel and units for field service was revised to provide that no weapons would be provided for chaplains or for medical units or personnel except veterinary (*49*). Subsequently, the Veterinary Division, Surgeon General's Office, initiated recommendations for arming veterinary units (and personnel) such as the veterinary convalescent, general, station, and evacuation hospitals and the veterinary cellular hospital, evacuation, animal service, and food inspection teams. Concurrently, veterinary units and personnel were required to undergo training in the use of weapons and courses in familiarization firing and qualification firing, such as were prescribed from time to time by Headquarters, Army Service Forces. Overseas, in the European theater, the Chief Surgeon's Office established the following policy: "Veterinary personnel, both officer and enlisted, *were not*, repeat *were not* [sic], entitled to protection afforded by the Geneva Convention, and the phrase 'personnel employed in pursuit of sanitary establishments' shall not include the Veterinary Service; further, that veterinary personnel will be armed" (*50*).

Awards

Military decorations were awarded to individuals in recognition of their acts of heroism performed, achievements accomplished, and valuable services rendered. In World War II, the Distinguished Service Cross was awarded to 1st Lt. (later Capt.) Clayton H. Mickelsen, VC, then with the 26th Cavalry Regiment (Philippine Scouts) (*51*). The citation read as follows:

> For extraordinary heroism in action at Rosario, La Union, Philippine Islands, on December 22, 1941. During a concentrated fire from enemy tanks and infantry at close range against the rear guard of the 26th Cavalry (PS) Lieutenant Mickelsen, with one

other officer, with total disregard of his personal safety, remained between the hostile troops and his own force, set fire to a truck placed on a bridge, and remained at the bridge exposed to enemy fire until satisfied that the bridge was in flames. Subsequently, Lieutenant Mickelsen, with the other officer, in a scout car, moved slowly with the rearmost elements of the 26th Cavalry, picking up the wounded and collecting and giving orders to stragglers. By his heroic actions, Lieutenant Mickelsen prevented unhindered pursuit by the hostile tanks, saved the lives of a number of wounded, collected many stragglers and set an inspiring example of courage for the entire regiment.

Next in order, below the Distinguished Service Cross, is the Distinguished Service Medal. Such a decoration was awarded to Brig. Gen. Raymond A. Kelser for his "unusual executive ability and initiative" and "leadership and foresight" as nominal chief of the Army Veterinary Service in World War II (*52*).[3] In addition, the following U.S. military decorations were awarded to Veterinary Corps officers: Legion of Merit, 37, and Bronze Star Medal, 49. One Sanitary Corps officer and one female veterinary officer of the Women's Army Corps, both on duty with the Army Veterinary Service, also earned the Legion of Merit. The Bronze Star Medal was awarded to 32 veterinary enlisted personnel.

Another military decoration, the Purple Heart, for wounds received in action, was awarded to an unknown number of veterinary officers and enlisted personnel. Also, mention must be made of the 5 Veterinary Corps officers and the 31 or more veterinary enlisted men in the China-Burma-India theater who were awarded the Combat Medical Badge for having shared with Infantry the hazards and hardships of combat. Another Veterinary Corps officer was awarded the Combat Infantryman Badge for his services, after being conversion transferred to Cavalry, during the fighting that ended with the capture of the Philippine Islands by the Japanese enemy in early 1942. Furthermore, some few Veterinary Corps officers were awarded decorations by foreign countries, and separate veterinary units and units having attached veterinary personnel received awards for meritorious service or participation in certain recognized campaigns of the war.

Attrition of Veterinary Officers

Those hardships of military service that can be measured in the terms of personnel killed or dying were not particularly great in the Veterinary Corps, as contrasted with the losses which were encountered in the combat arms. However, 17 veterinary officers died or were killed during World War II. This number included 4 Veterinary Corps officers who were killed in action and who were among the total 10 who were captured, wounded, or killed by enemy action (that is, battle casualties). Another 141 Veteri-

[3] This was the first instance that the Distinguished Service Medal was awarded to a veterinary officer, although it might be observed that a similar award was made to the World War I chief of corps, Col. C. F. Morse, MC.

nary Corps officers were separated from active military service during the war period, as indicated below:

Cause for separation	*Number*
Physically disqualified	84
Over 38 years of age	21
Retirement	9
Reclassified	6
Resigned	6
Released as key man in civilian life	4
Conditions other than honorable	3
Over age	2
Enter U.S. Military Academy	2
Dishonorable discharge	1
Hardship	1
Other	2
Total	141

Source: United States Army in World War II. The Technical Services. The Medical Department: Personnel. [In preparation.]

Nonveterinary Officers, Female Veterinary Officers, and Civilian Employees

Though a number of veterinary officers and veterinarians saw military service in other than the Veterinary Corps during World War II, very few non-Veterinary Corps officers and civilian veterinarians were used in the Army Veterinary Service. One Sanitary Corps officer came on duty with the Veterinary Division, Surgeon General's Office, and another one or two were assigned to duty with the Army Veterinary School, Army Medical Center, Washington, D.C. Also, a few MAC officers were assigned to larger veterinary units and organizations both in the Zone of Interior and oversea theaters where they substituted for veterinary officers on full-time duty as administrative personnel. It may be observed that tables of organization for large units, such as the veterinary convalescent, general, and evacuation hospitals, were changed during 1942 and 1943 to include position vacancies for MAC officers to command the hospital's enlisted detachments; on the other hand, the medical officers or aidmen who were authorized for such units pursuant to the organization tables, prior to World War II, were then withdrawn. However, since the number of these units was only five, the aforementioned had little influence on the utilization of MAC officers for conserving the Army's veterinary professional manpower in World War II.

One female veterinarian who had gained appointment in the Women's Army Corps in the fall of 1942 was assigned to duty with the Army Veterinary Service in a Medical Department laboratory (in the Seventh Service Command) in the Zone of Interior; on 25 August 1945, she was transferred to become the first female veterinary officer. Another female veterinarian who saw service as a noncommissioned officer (Women's Army Corps) in the Zone of Interior (in the Third Service Command) gained her appointment

as a first lieutenant in the Veterinary Corps in 1946. Actually, there were no established procedures for the appointment of female veterinary officers during World War II.

In regard to female military personnel, it may be noted that the Veterinary Division, Surgeon General's Office, in March 1944, could find no existent job positions to which Women's Army Corps officers could be assigned in lieu of male officers. On the other hand, a relatively small number of enlisted women were assigned to several station veterinary detachments or organizations in metropolitan areas, but generally their detail to duty presented a major problem because so many duties peculiar to the Army Veterinary Service precluded the use of women, military and civilian alike. On the other hand, female civilian employees could be, and were, used as clerks, stenographers, and typists, in the Veterinary Division, Surgeon General's Office, and in many veterinary offices of major commands, quartermaster depots, and medical laboratories, both in the Zone of Interior and the oversea theaters. Male employees were not used to any great extent, except possibly in medical laboratories (as animal caretakers), in depots (as laborers), and as food inspectors. However, food inspectors could not be used with any degree of success in most veterinary detachments whose enlisted personnel were necessarily needed for long or irregular periods of duty in the civilian food establishments that were producing on military contracts.

VETERINARY ENLISTED MEN

At the beginning of World War II, veterinary enlisted men were collectively designated as Medical Department (Veterinary Service), but, during the war, the practice of using this service branch designation was discontinued, and men then were referred to by their MOS. The authorized enlisted strength was 1,387 on 30 June 1941 and had been increased to 2,808 by 30 June 1942. Throughout this period, the space authorizations were filled by men, voluntarily enlisting (or reenlisting) in the Regular Army and, after the fall of 1940, also from National Guard units which were federalized, and the selectees who came into military service through the operations of the Selective Training and Service Act of 1940.

During the war, the number of enlisted personnel on duty with the Army Veterinary Service probably reached a peak of 6,370. Veterinary units which were organized pursuant to War Department-approved tables of organization alone projected requirements for more than 2,000 enlisted men, but there were other units and organizations whose tables of organization and overhead or bulk allotment authorizations provided space vacancies for many more. The basis for determining their requirements in local situations was defined in AR 40–2035, as follows:

3. Station allowance of noncommissioned officers.—To every veterinary station detachment there will be assigned at least one noncommissioned officer, Medical Department (Veterinary Service), and one additional such noncommissioned officer for every four

enlisted men of the Medical Department (Veterinary Service) of the grades of private, first class, and private in excess of four.

4. Station allowances of privates, first class, and privates.—*a.* To every veterinary station detachment commanded by a veterinary officer, there will be assigned at least four enlisted men of the Medical Department (Veterinary Service) of the grades of private, first class, and private when the animal strength is 200, and one additional private, first class, or private for every additional 75 animals.

b. The foregoing allowances are prescribed only when a veterinary hospital service is maintained at the station. If as a routine procedure, the sick animals are sent to a hospital at another station, the allowance of enlisted men authorized in this paragraph should be reduced to the actual requirements of the command.

c. The strength of veterinary detachments at administrative offices, depots, offices of attending veterinarians, laboratories, etc., where the special requirements of the veterinary service are not directly contingent upon the animal strength, and at all independent stations, will be determined in each case by The Surgeon General under the direction of the War Department.

Prior to the war, veterinary men were enlisted in the grade of private, with chances of promotion to private, first class, and then to corporal, on the authorization of the various veterinary detachment or unit commanders. Privates and privates, first class, according to their length of service and degree of proficiency in a prescribed MOS, also were given specialist ratings which carried with them certain pay emoluments. Beyond the grade of corporal, the veterinary enlisted men were advanced through the successive noncommissioned officer grades of sergeant, staff sergeant, and then technical and master sergeants. These higher grades were attained by examination and grant of a permanent warrant by The Surgeon General. As of November 1941, permanent warrants were held by 17 as master sergeants, 38 as technical sergeants, and 34 as staff sergeants in the Army Veterinary Service. In the meantime, permanent promotions had been stopped (after 30 June 1941) and, in lieu thereof, the noncommissioned officers were being promoted under temporary warrants to meet the needs of the rapidly expanding Army; these were granted to 9 master sergeants, 17 technical sergeants, and 74 staff sergeants during the fiscal year ending 30 June 1941.

Between 19 December 1941 and 1 June 1942, the peacetime specialist rating system for privates and privates, first class, was replaced. Technical enlisted personnel were appointed and promoted into the new technician grades of T/3 (technician, third grade), T/4 (technician, fourth grade), and T/5 (technician, fifth grade). Their pay and allowances were comparable to those of staff sergeant, sergeant, and corporal, respectively. Privates and privates, first class, having special ratings were integrated into the new technician grades, as follows:

1. Enlisted men with first, second, or third class specialist ratings and privates, first class, with first, second, or third class specialist ratings were redesignated as technicians, fourth grade.

2. Privates with third or fourth class specialist ratings and privates, first class, with fourth class specialist ratings were redesignated as technicians, fifth grade.

3. The fifth and sixth class specialist ratings were abolished.

At about the time that the peacetime specialist rating system was discontinued, the Army was well on its way to develop and utilize a system of classifying the large numbers of incoming selective service personnel who were to comprise the bulk of the wartime Army of the United States. Classification by their occupational skill (in contrast to classification by physical capacity and by intellectual capacity) now became very important to mobilization. Incoming selectees necessarily had to be promptly and properly assigned to specific military jobs on the basis of their having been trained or of their being experienced in some related occupation in civilian life. By December 1941, the Army was describing military occupations, such as horseshoer, meat or dairy inspector, veterinary surgical technician, and veterinary technician, which could be satisfied by assigning selectees who had been in such occupations in civilian life. However, no selectee had the civilian prerequisites for assignment in the Army as forage inspector, medical laboratory technician, veterinary ambulance orderly, veterinary noncommissioned officer, or veterinary pharmacy technician. For such assignment, the inducted personnel generally were required to have some military training and particularly to have prior civilian experience, such as blacksmith, barn boss, chemist, laboratory assistant, pharmacist, stable man, or a preprofessional student. Every kind of occupation or job in the Army was described, each with a code number or SSN (specification serial number), but only those characteristic of the technical personnel who came into the Army Veterinary Service are referred to in this discussion.

This occupational classification began on induction and was continuous throughout the military service of the enlisted men. In this procedure, the identity of the men as belonging to the Medical Department (Veterinary Service) was soon lost. The newly inducted men, after interviews at reception centers, were classified and given SSN's most closely corresponding to their major civilian occupations or skills. These men were then sent, according to their SSN, to units and replacement training centers. There they were given basic military training, and those seemingly best fitted for assignment to the Army Veterinary Service were given basic veterinary technical training; others were sent to Medical Department enlisted technicians schools. In the preliminary procedures, the enlisted men were referred to as potentials, eventually to qualify, by further military training or military experience in an assignment, in one of the seven MOS's. In July 1944, major revisions in the Army classification system saw this number of so-called veterinary occupational specialties reduced to three: meat or dairy inspectors, veterinary technician, and veterinary ambulance orderly.

The continual review of occupational classifications of enlisted personnel, whenever they were reassigned, led to the loss of many enlisted men who had become particularly valuable to the Army Veterinary Service. This loss occurred in the replacement depots and reassignment centers, where by mere

change of SSN's, the enlisted personnel were diverted into occupational assignments totally foreign to their civilian and/or past military occupations. Ordinarily, the enlisted personnel having a particular SSN were held in these depots and centers pending the latter's receipt of a requisition from a unit needing such specialists, but, under conditions of confusion, high priorities, and military exigencies, the personnel were reclassified into SSN's to immediately satisfy the personnel requisitions which had been submitted. The losses of qualified personnel by these actions were further aggravated when, at a later date, the depots and centers necessarily had to reclassify another group of personnel in order to meet newer requisition demands for the kind of personnel it had originally reclassified out of that SSN. The Army Veterinary Service overseas too often had to accept untrained, unqualified personnel. This practice became so commonplace, and there were so many complaints about it, particularly from oversea theaters, that Headquarters, Army Service Forces, in January 1945 directed that Medical Department enlisted personnel would not be diverted from medical services or utilized in any position which could be filled by non-Medical Department personnel.

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2. Annual Report of the Surgeon General, U.S. Army. Washington: U.S. Government Printing Office, 1940.

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4. Letter, Executive Officer, Surgeon General's Office, to The Adjutant General, 14 May 1941, subject: Special Mobilization Procedures for Procurement of Medical Department Officers Who Are Students in Approved Medical Schools, with 1st indorsement thereto, 23 May 1941.

5. Annual Report of the Surgeon General, U.S. Army. Washington: U.S. Government Printing Office, 1941.

6. Letter, Chief, Veterinary Division, Surgeon General's Office, to 17 recent graduates holding appointments as MAC officers, 11 June 1941.

7. Letter, Acting The Adjutant General, to corps area commanders and The Surgeon General, 2 Mar. 1942, subject: Medical Reserve Officers Holding Key Civilian Positions.

8. Letter, The Adjutant General, to corps area commanders, 18 Mar. 1942, subject: Availability of Reserve Officers for Active Duty.

9. Radiogram, The Adjutant General, to corps area commanders, 5 May 1941.

10. Letter, The Adjutant General, to army and corps area commanders, 20 June 1941, subject: Appointment in the Dental and Veterinary Corps Reserve of Inducted Veterinarians.

11. Memorandum, National Headquarters, Selective Service System, to State directors, 12 May 1941, subject: Occupational Deferment of Veterinary Doctors and Veterinary Students.

12. Memorandum, National Headquarters, Selective Service System, to State directors, 28 Jan. 1942, subject: Occupational Deferments of Medical Doctors, Dentists, and Doctors of Veterinary Medicine.

13. Memorandum, National Headquarters, Selective Service System, to State directors, 28 Jan. 1942, subject: Occupational Deferments of Medical Doctors, Dentists, and Doctors of Veterinary Medicine, amended 28 Apr. 1942. Reprinted, J. Am. Vet. M. A. 100: 525–527, June 1942.

14. Memorandum 76, Procurement and Assignment Service, to State Chairmen of Preparedness Committees, 20 May 1942. Reprinted, J. Am. Vet. M. A. 101: 78–79, July 1942.

15. Letter, The Surgeon General, to The Adjutant General, 18 Feb. 1941, subject: Commissioning of Junior and Senior Students in the Medical Department Reserve Corps, with 1st indorsement thereto, 18 Mar. 1941.

16. War Department Memorandum No. W150-3–4, 8 Feb. 1943, subject: Discontinuance of Appointments in Medical Administrative Corps of Accepted Matriculants in Medical, Dental, and Veterinary Schools and Disposition of Those Officers Previously Appointed as Such. As amended by Changes 1, 18 Feb. 1943, and Changes 2, 25 July 1943.

17. War Department Circular No. 179, 6 May 1944, subject: Medical Administrative Corps.

18. Immediate action letters, The Adjutant General's Office, to service commands, 20 May 1943, subject: ASTP Negotiation Directives for Veterinary Medicine Training.

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20. Letter, The Adjutant General's Office, to The Surgeon General, 13 Feb. 1940, subject: Additional Officers Required if Regular Army is Increased From Enlisted Strength of 227,000 to 280,000.

21. Letter, The Adjutant General's Office, to The Surgeon General, 31 May 1940, subject: Active Duty of Reserve Officers Incident to Increase of Regular Army.

22. Public Law 667, 76th Congress, 3d Session, approved 26 June 1940.

23. Letter, The Adjutant General's Office, to corps area commanders, 2 Oct. 1940, subject: Additional Reserve Officers for Extended Active Duty With Corps Area Service Commands.

24. Letter, The Adjutant General's Office, to corps area commanders, 25 Nov. 1940, subject: Additional Reserve Officers for Active Duty With Regular Army.

25. Letter, The Adjutant General's Office, to corps area commanders, 20 Nov. 1940, subject: Allotment of Medical Reserve Officers.

26. Annual Report, Veterinary Division, Surgeon General's Office, U.S. Army, 1942.

27. Letter, The Adjutant General's Office, to corps area commanders and The Surgeon General, 17 Apr. 1942, subject: Commissions for Dental and Veterinary Students.

28. Letter, The Adjutant General's Office, to The Surgeon General, 19 Nov. 1942, subject: Amendment to Procurement Objective, Army of the United States, for Duty With the Veterinary Corps (Surgeon General).

29. Letter, The Adjutant General's Office, to The Surgeon General, 24 Nov. 1942, subject: Increase in Procurement Objective, Army of the United States, for The Surgeon General (Veterinary Corps).

30. Memorandum, Assistant Chief of Staff, for Military Personnel Division, Army Service Forces, 15 Sept. 1943, subject: Requirements for Veterinarians.

31. Memorandum, Director, Veterinary Division, Surgeon General's Office, for Military Personnel Division, Surgeon General's Office, 20 Sept. 1943.

32. Letter, The Adjutant General's Office, to Headquarters, Army Service Forces, 18 Oct. 1943, subject: Cancellation of Procurement Objectives.

33. Letter, Surgeon General's Office, to Assistant Chief of Staff, G–1, 13 Jan. 1945, subject: Establishment of a Ceiling for Veterinary Corps Officers.

34. Letter of reply, The Adjutant General's Office, to The Surgeon General, 14 Apr. 1945.

35. Letter, The Adjutant General, to The Surgeon General, 17 May 1945, subject: Procurement Objective for Appointment in Army of the United States (Veterinary Corps).

36. Letter, Adjutant General's Office, to The Surgeon General, 13 July 1945, subject: Establishment of Ceiling for Veterinary Corps Officers.

37. Letter, Adjutant General's Office, to all concerned, 2 Sept. 1945, subject: Cancellation of Procurement Objective.

38. AR 40–2035, 18 Dec. 1942.

39. Letter, The Adjutant General, to Chief, Veterinary Division, Surgeon General's Office, 17 Mar. 1942, subject: Appointment as Brigadier General.

40. Letter, The Adjutant General, to The Surgeon General, 16 Sept. 1940, subject: Temporary Promotion of Regular Army First and Second Lieutenants.

41. Memorandum, Chief, Veterinary Division, for Chief, Military Personnel Division, Surgeon General's Office, 16 Dec. 1940.

42. Letter, Acting The Adjutant General, to chiefs of arms and services, and corps area and department commanders, 25 Aug. 1941, subject: Temporary Promotion of Regular Army Officers.

43. Monthly Résumé of Activities of the Veterinary Division.

44. War Department Circular No. 1, 1 Jan. 1942.

45. Letter, The Adjutant General, to Representative C. B. Hoeven, M.C., 30 Oct. 1943.

46. War Department Circular No. 10, 11 Jan. 1946.

47. War Department Circular No. 140, 15 May 1946.

48. TM 27–251, 7 Jan. 1944.

49. War Department Memorandum No. W310–44, 23 Feb. 1944, subject: Policy Governing Armament for Table of Organization and Equipment, Service Units.

50. Semiannual Report, Veterinary Division, Office of the Chief Surgeon, Headquarters, ETOUSA, 1945.

51. General Orders No. 11, Headquarters, U.S. Army Forces in the Far East, 18 Jan. 1942, subject: Awards of Distinguished Service Cross.

52. War Department General Orders No. 4, 9 Jan. 1946.

CHAPTER V

Training and Instructional Services

The expansion of the Army Veterinary Service, during World War II, to its peak strength of 2,116 officers and to three to four times that number of enlisted personnel suffices to indicate the magnitude of training. The majority of these personnel required some degree of training—perhaps only indoctrination—in basic military and technical subjects which would qualify them for assignment to duty in an Army occupational specialty. Almost without exception, there were no military position vacancies which could be satisfied merely by placing uniforms on civilian veterinarians. This procedure had been tried in World War I when the Veterinary Corps was constituted and organized, but the results were unsatisfactory. At that time, the untrained military veterinarian had failed to impress his field commander with professional recommendations and opinions on the conservation of animal health and efficiency.

In contrast, the onset of World War II found the Army Veterinary Service to be well advanced in its state of training. This had been made possible by the continuation of the Veterinary Corps and the Medical Department program for training veterinary personnel during the peacetime period. Thus, by 1940, nearly all of its regular officers had completed the annual two-phase course of military indoctrination, lasting 9 months, at the Medical Field Service School, Carlisle Barracks, Pa., and at the Army Veterinary School, Army Medical Center, Washington, D.C.; many such officers also had entered into postgraduate professional education or into advanced military training courses.

In addition, the Veterinary Reserve Corps officers who were being ordered into active military service in 1939–40 included many officers, who had completed their professional education in the civilian veterinary colleges and educational institutions which had Reserve Officers' Training Corps units, or who had seen active service, during the 1930's, with the Civilian Conservation Corps under Regular Army administration and supervision. These, and a greater number of other Reserve Corps officers, also had been prepared for military service by their entry in the peacetime correspondence or extension courses which were conducted by the Medical Field Service School and in the 2 weeks' duty training at summer training camps. There was also the relatively small group of veterinary officers with the National Guard units who had trained in the armories and in summer encampments. Altogether, the active and reserve veterinary components of the Army of the United States comprised a satisfactorily trained cadre about which the Veterinary Service of World War II developed into an efficient operational organization.

During World War II, the urgent requirements for large numbers of specially qualified individuals were met by modifying or converting the military training courses that were operated by and for the Regular Army in peacetime and by establishing new ones. Naturally, these wartime courses were considerably shorter in duration. They were conducted formally in the Zone of Interior at service schools, replacement pools, and training centers, at certain military installations, and in some few civil educational institutions. The wartime courses generally were "refresher" in nature as they pertained to basic military or technical subjects, but others were at the level of postgraduate professional or advanced military training. Between July 1940 and June 1945, 1,898 veterinary officers and 4,256 enlisted personnel completed such courses.

However complete and extensive as these training courses in the schools and centers in the Zone of Interior may appear, they did not change the basic military concept that the state of training was a command responsibility. The Army camp commander, commanding officer of a unit, or oversea commander—particularly the station veterinarian, senior officer of a veterinary unit, or theater veterinarian—was actually responsible for properly training, or having trained, all of the organically assigned veterinary personnel of that detachment, unit, or command. The Surgeon General had no such responsibility, acting only as adviser and elucidating basic Medical Department doctrine, primarily at the level of schools and training centers (*1*). Thus, pursuant to the Army regulations in effect during World War II—originally promulgated during the 1920's—Army Veterinary Service generally was responsible for training its own personnel, and this concept at the Army camp level was expressed in the following words (*2*, *3*).

> 8. Control of veterinary personnel.—As a detachment commander, the station veterinarian will be responsible that all veterinary officers are properly instructed with regard to their professional and military duties and responsibilities, and for the * * * instruction, training * * * of all enlisted men, Medical Department (veterinary service), who may be assigned to the station * * *.
>
> 9. Instruction and training of veterinary personnel.—All enlisted men of the Medical Department (veterinary service) will be instructed under the supervision of the station veterinarian in the methods of rendering first aid to sick and wounded animals, in the care, management, and hygiene of animals, and the various subjects pertaining to the veterinary enlisted man.

This veterinary responsibility was not removed from the Army camp or unit level, but its significance generally escapes attention because World War II saw increasing emphasis on training personnel at schools and training centers prior to their assignment to the units or station detachments. In other words, the Army camp or unit veterinarian, at the beginning of the war, almost alone had the all-important responsibility for training the individual, and only such personnel as could be spared were detailed to the service schools for additional training. New station detachments and veterinary units were developed by ordering cadres of trained personnel from existing

ones and by such cadres then training the new, additional personnel (that is, selectees) who were being ordered into the detachments and units directly from the reception centers. This was the cadre training system; it contrasted with the preactivation training which came into existence later in the war period.

This cadre system involved the movement of new personnel from the reception centers into training centers and schools in sufficient number to form certain planned units and detachments. Thereby, the recipient unit or camp was relieved of much of its responsibilities for operating training schedules on basic military and technical subjects, and at the same time this preactivation training assured a certain known level of individual training in all detachments and units. However, the preactivation system singularly favored the new organizations because existent ones could no longer slough off their undesirable personnel into cadres.

Another advantage was that the preactivation training overcame the objections which were voiced against the stripping of personnel from units in training and operational detachments to attend the training schools, thus delaying the training of the unit as a whole. Actually, preactivation training was not in operation during the early part of World War II when a great number of new veterinary units and detachments were brought into existence—for the reason that the output from formal training schools and centers was not yet adequate to meet the numerical demands for trained personnel in the great numbers of new units then being formed. On the other hand, somewhat similar results were being obtained because, beginning in November 1940, great numbers of veterinary officers on being ordered to active duty were sent to the Meat and Dairy Hygiene Course, Chicago Quartermaster Depot, Chicago, Ill., while en route to initial assignment; others were initially ordered for processing and reassignment training at officers' replacement pools which were established at depots, ports, and medical installations after January 1942.

The training of the individual veterinary officers and enlisted personnel did not stop after their completion of the school courses; it was continuous throughout their military service. Frequently, the training of individuals within units and detachments was applicatory in nature, on-the-job training. Also, they were trained to function together as a team—this being referred to as small unit training. Such training was extended to approximately 85 veterinary hospital, company, troop, and detachment (or cellular team) units which were activated and organized in the Zone of Interior for oversea deployment. These units, following completion of their unit training programs, were frequently advanced in their training by ordered movement into maneuver areas with army corps and field armies. At their representative table of organization strength, these veterinary units aggregated more than 2,000 personnel. The veterinary officers and enlisted personnel who were organically assigned to the combat divisions, Army Ground Force units other

than divisional, Medical Department laboratories and hospitals, Quartermaster Corps refrigeration companies, Signal Corps pigeon companies, and Army Air Force commands were similarly trained.

TRAINING VETERINARY OFFICERS

During World War II, the training of Veterinary Corps officers was a part of the Medical Department training system. Several refresher-type and short courses on postgraduate professional subjects were conducted at the Army Veterinary School; their training for field service was conducted in parallel with that of Medical and Dental Corps officers at the Medical Field Service School, Carlisle Barracks, Pa. The veterinary officers' course in meat and dairy hygiene, established and maintained on request of The Surgeon General, though sanctioned as a Quartermaster Corps activity, was actually regulated by and for Medical Department veterinary personnel.

Veterinary officers were also detailed as students for further training in non-Medical Department service schools and civilian educational institutions which better adapted such officers for military assignments of a more general nature—such as defense in chemical warfare, medical supply procurement, foreign language, or duty with military government in liberated and occupied countries. Generally, this training was conducted under the jurisdiction of the wartime Army Service Forces organization of the War Department in the Zone of Interior, but it was made equally applicable to the veterinary personnel assigned to the Army Ground Forces and Army Air Forces. Overall, this entire program of training was purposefully established and maintained for the fitting-in of Veterinary Corps officers as integral members of the medical team in the Army formation.

Army Veterinary School

The Army Veterinary School, in operation since the early 1920's, was at the onset of the pre-World War II emergency period conducting its 23d (and final), shortened session (15 September to 30 November 1939) of the Basic Graduate Course for five newly commissioned veterinary officers, Regular Army. Following the completion of the session of this course, the Army Veterinary School—so far as veterinary officer training was concerned—instituted two wartime courses; namely, the Refresher Course in the Forage Inspection and the Special Graduate Course in Clinical Pathology (later replaced by the Refresher Laboratory Training Course). The graduates from these courses numbered 112 veterinary officers during the period from January 1940 through December 1946. The aforementioned courses were continued throughout World War II. The Army Veterinary School conducted these courses of training within the organization of the Medical Department Professional Service Schools, Army Medical Center.

The mission of the Army Veterinary School, as set forth in AR 350–1021, included the operation of training courses, the conduct of research and

maintenance of a veterinary laboratory, and the production of certain biologicals. This mission closely paralleled the missions which were assigned to the other school elements of the Medical Department Professional Service Schools. The school's staff, during the war, increased from a nominal peacetime strength of 2 to 3 veterinary officers to 9 officers as of 30 June 1945; at this time, there were also 23 enlisted technicians and 10 civilian employees. These personnel for the most part were not engaged in the conduct of training, however, as they were used in the laboratory and research section of the Army Veterinary School organization. Within the training or school section of the Army Veterinary School there were academic departments—five for the officers' course and another two for the enlisted men's course.

The National Guard officers' course, or the part of the original basic Graduate Course relating to forage inspection, was continued during World War II as the 1-month Refresher Course in Forage Inspection, for veterinary officers only, regardless of whether they belonged to the Regular Army, National Guard, or Reserve Corps. It was inaugurated under a letter of authorization from the War Department, dated 31 July 1940, whereby wartime refresher and special graduate courses could be established by The Surgeon General (*4*, *5*, *6*). The course was temporarily suspended in June 1942, but, at the request of the Surgeon General's Office, it was reestablished by Headquarters, Army Service Forces, beginning again on 1 March 1943. Until V–J Day, after which time this course was set aside in a nonoperational status, the Refresher Course in Forage Inspection was conducted 21 times, its graduates totaling 66 veterinary officers.

The section of the Refresher Course in Forage Inspection, relating to the grading of hay in accordance with U.S. standards, was actually conducted by personnel of the U.S. Department of Agriculture (at cost to the Army) pursuant to an agreement which had been reached between that agency and the Army in 1925. The agreement provided that veterinary officers successfully completing such instructions would be licensed each year by the Secretary of Agriculture as official Federal hay inspectors. In practice, the inspection of the Army's supply of hay by Veterinary Corps officers was conducted on a professional basis, and this inspection had gained a degree of statutory recognition.

The other wartime course for veterinary officers, the Special Graduate Course in Clinical Pathology, established by the Army Veterinary School, followed recommendations which were made by the Veterinary Division, Surgeon General's Office, during June 1940. This course was inaugurated a few months later. Designed as a refresher or preparatory course to train veterinary officers who were being assigned to veterinary laboratory activities and Medical Department laboratory units, it included 454 hours of applicatory study and instruction in bacteriology, parasitology, serology, and food chemistry (*7*). Although conducted several times as a regularly scheduled 4-month course, the urgent wartime need for such officers and the use of it

in the local veterinary officers' replacement pool soon saw the course scheduled whenever veterinary officers reported for training. This special graduate training course was restarted after V–J Day when it was renamed the Refresher Laboratory Training Course. By the end of 1946, 46 veterinary officers had completed this training course.

Medical Field Service School

Although the officers' courses at the Army Veterinary School were conducted only for Veterinary Corps officers—in the same manner as Medical Corps officers were trained at the Army Medical School and Dental Corps officers at the Army Dental School—the officers' course at the Medical Field Service School at Carlisle Barracks, Pa., was generally open to Medical Department officers of the three professional corps; that is, medical, dental, and veterinary officers were given parallel training in medical field service. During peacetime, these Medical Department officers, on gaining Regular Army commissions, were routinely entered into a training and indoctrination course lasting 9 months—4 months at the respective professional service schools, and then they were grouped together for the 5-month course at the Medical Field Service School. The latter was the so-called Basic Officers' Course. With the approach of World War II, the course was modified in length to a shorter one, and sessions were scheduled in rapid succession for the training of new Regular Army officers.

The special Basic Officers' Course was further modified in December 1940 and converted into the wartime Refresher Officers' Course which was continued through World War II. Shortly after World War II, the Carlisle Barracks training facility was discontinued, and the Medical Field Service School was concurrently established at the new Brooke Army Medical Center, Fort Sam Houston, Tex. During the years 1940–46, a total of 683 veterinary officers had completed training in medical field service.

This training of veterinary officers at the Medical Field Service School was integral to the school's assigned missions which included the training of Medical Department officers in the principles and methods of medical field service so as to increase their ability as instructors and to enhance their proficiency in the performance of their command and staff duties. To accomplish this training mission, the school was divided into several academic departments. The Department of Veterinary Field Service was first recognized by AR 350–1030, 8 September 1942. The veterinary representative or department was scheduled to provide certain instructional services not only in the Advanced and Basic Officers' Courses but also in a variety of other courses such as the Medical and Field Sanitary Inspectors' and the Officer Candidate Courses that came into existence during World War II.

The wartime Refresher Officers' Course in field service for medical, dental, and veterinary officers was conducted 73 times; its veterinary student

output totaled 677 officers. In contrast with the 5-month peacetime course which it had replaced, the wartime course was originally scheduled for 4 weeks, but this was later revised to 6 or 8 weeks. Each session included a comprehensive and intensive study in a variety of subjects which would qualify younger Medical Department officers of the wartime Army of the United States to better understand and apply the principles of military medicine and to conserve the health of the Army. The instructional services within the course that were rendered by the veterinary academic department were gradually increased from 1 hour in 1940 to 5 hours in 1945. Sessions having five or more veterinary officer students saw the withdrawal of some of the students from certain parts of the general course to be given specialized training in veterinary field service. Such training originally comprised 15 hours of so-called substitute instruction, but this was gradually increased to a total of 53 hours by 1943. At this time, the topical subjects included veterinary administration, the organization of the veterinary service in task forces and theaters of operations, the care and transportation of animals, pack animal transport, Army dogs, diseases of animals, veterinary preventive medicine and public health, and the inspection and care of subsistence in field storage.

The attendance of the 677 veterinary officers in the Refresher Officers' Course on medical field service during the war actually led to the criticism that insufficient numbers were being so trained. The Veterinary Division, Surgeon General's Office, sought to remedy this by originally emphasizing the detail of veterinary officers to the course from the tactical units and commands. Unfortunately, the field army or command surgeons—though generally in agreement with the program of training—voiced opinions that the individual veterinary officers who were under their jurisdiction were then too few in number to be spared from their units which, at that time, were entering into field maneuvers. The corps areas, later renamed service commands, were also requested to send their assigned veterinary officers to the Medical Field Service School for training, but this seemed to have no material effect on increasing veterinary officer enrollment. Later, the Veterinary Division, Surgeon General's Office, augmented its request to the service command veterinarians in the Zone of Interior by adding as a prerequisite to the training of officers in military meat and dairy hygiene the prior completion of the Refresher Officers' Course in field service. In 1943, the service command veterinarians were even advised that unless they sent greater numbers of their assigned personnel to the Medical Field Service School, the Veterinary Division, Surgeon General's Office, would have to withdraw veterinary activities there.

Meat and Dairy Hygiene Course

Officially, there was no Medical Department Meat and Dairy Hygiene School until after the end of World War II; there was, however, throughout

the war period, the official Meat and Dairy Hygiene Course for veterinary officers that was conducted at the Chicago Quartermaster Depot (*8*, *9*). This course of specialist technical training found its beginning in the establishment, by The Surgeon General, of several refresher and special graduate courses for Medical Department personnel such as were contemplated in the current Army mobilization regulations (*4*, *5*, *6*). Although the greater number of the wartime courses (not excluding the aforementioned Refresher Course in Forage Inspection, Special Graduate Course in Clinical Pathology, and Refresher Officers' Course) were set up within hospital and school facilities of the Medical Department, short courses for training 20 or more Veterinary Reserve Corps officers (who were being ordered into active military service) as meat and dairy inspectors were inaugurated in mid-1940 at three quartermaster depots and one port of embarkation.

At this time, the operation of a school-type course became a subject of discussion between the Depot Veterinarian, Chicago Quartermaster Depot, and the Veterinary Division, Surgeon General's Office. On 1 November 1940, the Veterinary Division obtained approval from the Office of the Quartermaster General to conduct short courses for training veterinary officers under the supervision of the depot veterinarian and to obtain classroom space within the depot. No reference was then made to a school, because the conduct of a wartime course was paramount; the new Meat and Dairy Hygiene Course was convened in its first session, beginning 25 November 1940, with an enrollment of 17 Veterinary Corps officers. While some consideration had been given for training veterinary enlisted personnel in Chicago, the enlisted men's Meat and Dairy Hygiene Course was not added to the veterinary training facility at the Chicago Quartermaster Depot until the fall-winter of 1945. Through 1946, the Meat and Dairy Hygiene Course was conducted 52 times, with its graduates totaling 1,038 veterinary officers as follows:

Calendar year	*Number*
1940	17
1941	169
1942	191
1943	194
1944	188
1945	165
1946	114

This number included more than a hundred officers originally assigned to the Army Air Forces; others so trained were later reassigned to the Army Air Forces, also to the Army Ground Forces.

The training facility which conducted this course came to be regarded as a Quartermaster Corps activity under the control of The Quartermaster General. Its instructional staff of Veterinary Corps officers, usually three in number, were actually depot-assigned personnel, including one who was designated as director and was responsible to the Depot Veterinarian, Chicago Quartermaster Depot, for the operation of the course. Their assignments,

however, were regulated by the Surgeon General's Office which also maintained control over the training doctrine.[1]

TABLE 12.—*Representative programs for veterinary officers' Meat and Dairy Hygiene Course, Chicago Quartermaster Depot, Chicago, Ill.*

Programs	5½-week course	8-week course
	Hours	*Hours*
Veterinary administration	28	38
Fresh meats	31	41
Sausage	8	11
Cured and smoked meats	10	13
Canned meats and Army rations	16	13
Fats and oils	2	6
Fish and seafoods	6	7
Poultry and eggs	35	42
Milk and dairy products	38	49
Inspection procedures	12	22
Establishment inspection		8
Refrigeration and warehousing	3	10
Food poisoning and microbiology	4	6
Basic military training or troop information, and physical conditioning	49	32
Examinations and reviews	10	6
Commandant's time	12	16
Total	264	320

The veterinary officers' Meat and Dairy Hygiene Course was originally scheduled as a 4-week course, including 166 hours of lectures and demonstrations. Gradually, the course subjects were changed, and new ones were added to better qualify its veterinary officer graduates to inspect the Army's food supply which also changed; thus, additional training was provided in dehydrated products such as dried eggs and milk powder, in field rations, and in boneless beef. By mid-1943, the course scheduled 217½ hours of technical instruction and, in the fall of 1943, Headquarters, Army Service Forces, added several hours of concurrent basic military training and physical conditioning. During June 1944, a 5½-week program was scheduled and officially approved by the Military Training Division, Army Service Forces. The 264 hours of training that were now scheduled included 50 hours on veterinary administration and miscellaneous matters, 165 hours of technical and professional subjects, and 49 hours on military training and physical conditioning (table 12). There were no major changes in the course program for the remainder of the war period.

[1] In 1946, War Department Pamphlet No. 20-21 concerning official courses of training in Army schools made reference to the "Meat and Dairy Hygiene School, Chicago Quartermaster Depot, Chicago, Illinois," but reference to the training facility officially as a school was not made until 1952, when War Department General Orders No. 80 changed the "Army Medical Service Meat and Dairy Hygiene School" from an activity under the control of The Quartermaster General to one under the control of The Surgeon General.—E. B. M.

Graduate Professional Training in Civilian Educational Institutions

Though the war saw a many-fold increase in the refresher and short-period professional training for Veterinary Corps officers within the Medical Department service school system, the postgraduate or advanced professional training in civilian educational institutions (at Government expense) was more or less suspended so far as veterinary officers were concerned. In fact, during the academic year of 1940–41, only one officer attended the advanced course in animal breeding that was given at the University of Kentucky, Louisville, Ky., and it was not until 1946 that veterinary officers resumed this training in educational institutions.

Advanced Military Training

Advanced and specialist military training, as distinguished from professional or technical training in Medical Department schools and civilian universities, was given to 105 veterinary officers in a variety of Army service schools, including the Army Industrial College, and in schools maintained at civilian institutions. In the fall of 1941, two veterinary officers were in attendance at two successive sessions of a 3-month course of training on the mobilization of civilian industry and the procurement of military supplies at the Army Industrial College, Washington, D.C. Also, after a lapse of 13 years, including the entire active war period, the War Department reestablished a quota for veterinary officers to enter into the Command and General Staff School, Fort Leavenworth, Kans. Though the Surgeon General's Office, then encountering an extreme shortage of Veterinary Corps officers, did not favorably review the detail of veterinary officers as students to the school, one veterinary officer attended a course during 1946.

Among the special service schools, outside of the Medical Department, to which veterinary officers were most frequently detailed as students was the Chemical Warfare School, Edgewood Arsenal, Md. During the academic year of 1940, an officer attended that school's 7-week Basic Officer's Course for Chemical Warfare Service officers. In 1942, on request of the Surgeon General's Office, the Chief of the Chemical Warfare Service cooperated in establishing a short course at the school for training on the medical aspects of chemical warfare. When the War Department, on 4 August 1942, announced the establishment of this course, reference was made only to the detail there of Medical Corps officer students. However, the Veterinary Division, Surgeon General's Office, argued the need for similar training for Veterinary Corps officers, so that Headquarters, Services of Supply, on 9 October 1942, authorized changes in the Medical Corps Officers' Course, Chemical Warfare School, to include the training of veterinary officers. Eventually, the course title was amended to Medical Department Officers' Course. Veterinary officers attended 19 of the 29 sessions of this course that

were conducted, with the number completing it totaling 62 personnel, as follows:

Calendar year	Number
1942	8
1943	26
1944	22
Year not known	6

Programed originally as a 4-week course, the Medical Department Officers' Course at the Chemical Warfare School was reduced to one of 3 weeks' duration beginning in May 1943. Prior to entry into this course, the concerned medical and veterinary officers were required to have successfully completed the Refresher Officers' Course at the Medical Field Service School. (It may be noted that the latter course included some training on the medical aspects of chemical warfare during the time that the Medical Department course at the Chemical Warfare School was nonoperational.) The Medical Department Officers' Course included instruction, by Veterinary Corps officer instructors, on the protection, care, and decontamination of foods and of animals in the event of chemical attack; these subjects were given in more detail to the veterinary officer students in 15 to 24 hours of substitute instruction which was scheduled for all sessions having such students. As a sufficient number of Medical Department personnel had become specially qualified to meet the potential medical exigencies of chemical warfare and as the enemy use of this type of specialized warfare was then improbable, the course was discontinued in the winter of 1944–45.

In the program of training personnel for civil affairs and military government assignments in liberated and occupied countries, 13 veterinary officers were sent to the School of Military Government that was established in May 1942 at the University of Virginia, Charlottesville, Va., and was operated under the command of the Provost Marshal General; another two officers were entered into a 4-week training course at the Provost Marshal General's School at Fort Custer, Mich. From these service schools, the student officers were advanced in their preparation for future assignment by detail for 12 weeks' training in the Civil Affairs Training Schools at civilian educational institutions, including Harvard University, Cambridge, Mass., and Yale University, New Haven, Conn. Eleven of the veterinary officers attended the latter schools, and another one attended the Naval School of Military Government which had been established at Princeton University, Princeton, N.J. By the end of 1945, 19 veterinary officers had completed this training.

It is interesting to note that 12 veterinary officers (1 in 1944, 10 in 1945, and 1 in an unknown year) attended the Army Chinese Language School which was operated at the University of California, Berkeley, Calif. Personnel with this training were urgently needed in the Army Veterinary Service which instructed, and operated in liaison capacity with, the Allied-sponsored and U.S.-trained Chinese military forces in China, Burma, and India. After

August 1945, the assignment of additional personnel in such training, lasting from 4 to 6 months per course, was brought to a halt.

Reserve Officers' Training Corps

There were no veterinary ROTC (Reserve Officers' Training Corps) units in operation during World War II; however, mention should be made of the training, as a very substantial number of the Veterinary Corps Reserve officers called to active duty during the war had been commissioned following completion of ROTC training. Prior to June 1933, 453 ROTC graduates had been commissioned in the Reserve. During 1920–21, veterinary ROTC units were established in four veterinary colleges, Kansas State Agricultural College, Cornell University, Ohio State University, and Iowa State College of Agriculture and Mechanical Arts. Enrollment in these units steadily increased, reaching a peak at about the time that the appropriations of 14 July 1932 prohibited training of a student not enrolled prior to 5 May 1932. Training of students enrolled prior to that date was continued until the student graduated—the last enrollees graduated in 1935, and the units were disbanded. It was not until 1948 that the restriction in the military appropriation acts was removed and ROTC veterinary units were established in six veterinary colleges.

TRAINING VETERINARY ENLISTED PERSONNEL

After the fall of 1917 when enlisted personnel were authorized for the Army Veterinary Service, their training as animal service technicians, meat and dairy inspectors, and laboratory technicians was an important activity within the Medical Department. In comparison to the training of more than 9,000 enlisted men in World War I, during World War II, such training was conducted in eight separate Medical Department schools, replacement training centers, and other facilities in the Zone of Interior for 4,240 enlisted personnel.

Beginning with the two sessions of the Army Veterinary School which were started in September and December 1940, the School's Veterinary Technicians Course was lengthened to 3 months, with 22 personnel completing the two sessions. The changes in the duration of the course and acceleration of the course schedules were the first real progress made during the pre-Pearl Harbor emergency periods in the development of the Medical Department wartime training program for veterinary enlisted personnel. Effective in March 1941, the responsibility for conducting this course was transferred from the Army Veterinary School to the Medical Department Enlisted Technicians School which was then established as a separate school within the organization of the Medical Department Professional Schools, Army Medical Center. A second Enlisted Technicians School with a comparable veterinary

training course was established at about the same time at William Beaumont General Hospital, El Paso, Tex.

Replacement Training Centers

During the period that Medical Department school training was being converted and accelerated into a wartime program, the training of enlisted men became involved in the procedures of receiving and processing those who, pursuant to the Nation's new draft laws (that is, the Selective Training and Service Act of 1940), were being inducted into the Army. At first, the selectees (then, at times, also called draftees), as well as volunteer recruits or enlistees, were assigned to Regular Army and recently federalized National Guard units for their basic training. By mid-1941, these personnel were being processed instead through reception centers, and from there they were moved into replacement training centers.

At these training centers—one or more in number for each combat arm and service branch—all selectees and recruits were given basic military training and basic technical training prior to their assignment to the new units which were being organized or to units as replacement personnel. Several such centers were expressly established as medical replacement training centers and later, on 15 April 1944, were renamed medical sections, Army Service Forces training centers. However, in only one of these was veterinary replacement or basic technical training actually conducted at any one time. Originally, this was at the Medical Replacement Training Center, Camp Grant, Ill., where the Veterinary Section of the Center was established in November 1941. During the summer-fall of 1944, this veterinary instructional group and its equipment were transferred to a new station as a part of the Medical Training Section, Army Service Forces Training Center, Fort Lewis, Wash.

Basic technical training of selectees for future assignment as veterinary animal service technicians and meat and dairy hygienists was started at Camp Grant on 1 December 1941. Until the fall of 1944, selectees and recruits in this center who advanced from their initial basic military training into the veterinary basic technical training course numbered 1,419; of this number, 1,260 successfully completed their basic technical training in the 35 sessions of the veterinary course that were conducted. At Fort Lewis, two more sessions of the veterinary basic technical training course were conducted during the winter of 1944–45; its enrollees who completed the training numbered 61. There was no further training of individuals in technical specialties for the Army Veterinary Service in the centers after January 1945, and shortly after V–J Day, all technical training was stopped in the Army Service Forces training centers.

The veterinary basic technical training, which was conducted at Camp Grant and then at Fort Lewis, comprised only a part of the whole program of training being given to the selectees and recruits coming into the replacement centers. The selectees and recruits were given basic military

training, and, on completion of this training, those who had prior civilian experience or education and otherwise seemed to be qualified for potential assignment as veterinary animal service technicians or meat and dairy inspectors were entered into the veterinary basic technical course at the centers. These two courses together were referred to as comprising the mobilization training program.

Obviously, not all selectees who possessed prerequisites for assignment to the Army Veterinary Service, even those who may have been particularly well qualified, were advanced into veterinary basic technical training; also, selectees who were not specially qualified were passed on at times into veterinary basic technical training. In a sense, the aforementioned situation lends itself to some criticism of military wastages of civilian trained manpower, but the fact remains that the Selective Service procedures for inducting men in World War II did not assure the input of men having certain civilian educational or occupational qualifications in such numbers and proportions as were needed, sometimes quite urgently, by the military services. The whole mobilization training program varied between 8 weeks and 17 weeks. Within the 17-week program which was prescribed by the War Department in August 1943, there were 6 weeks of basic military training; 8 weeks of technical, tactical, and logistical training; and 3 weeks of field training. Of course, the basic technical training period changed as the length of the mobilization training program was changed.

The training center's basic military trainees who were selected for veterinary basic technical training and future assignment to the Army Veterinary Service came under the jurisdiction of the veterinary instructional staff of the replacement training center. At Camp Grant, this instructional staff, averaging four veterinary officers, was referred to as comprising the Veterinary Technicians School, Medical Replacement Training Center (fig. 1). The basic technical course lasted approximately 5 weeks and included 240 hours of instruction as follows:

Subject	*Hours*
Administration	15
Anatomy and physiology	25
First aid	30
Animal management	15
Veterinary sanitation	1
Pharmacy	4
Horseshoeing	2
Supplies and equipment	6
Defense in chemical warfare	3
Field veterinary service	22
Army dogs	2
Horsemanship	12
Meat and dairy hygiene	77
Concurrent basic military training	26

Later, an 8-week course was developed.



FIGURE 1.—Training potential meat and dairy hygienists in the inspection (or candling) of individual shell eggs, at Veterinary Section, Medical Replacement Training Center, Camp Grant, Ill.

This training program prepared the selectee for eventual assignment either as a veterinary technician (animal service) or as a meat and dairy inspector—each recognized as a particular military occupational specialty and having a so-called SSN (specification serial number) of 250 and 120, respectively. On completion of the training, the selectee was assigned one SSN or the other according to his prior civilian experience and education, his aptitude shown during the basic technical training which he had just completed, and the existing requirements. Assignment or movement orders then were issued by the Adjutant General's Office for these trainees to proceed to units, to unit training centers, to Army camps in the Zone of Interior, or to ports for oversea shipment, or wherever requisitioned. Some selectees were lost to officers' candidate schools, and many others were sent to Medical Department enlisted technicians schools for further training.

During August 1944, the instructional staff at Camp Grant was transferred to reestablish veterinary basic technical training in the Medical Training Section, Army Service Forces Training Center, Fort Lewis. At this Center, the instructional staff experienced a rapid turnover of its personnel, but two sessions of an 8-week replacement training course were conducted, with 61 enlisted men completing it, before 3 February 1945. Refresher training courses also were conducted for 19 meat and dairy inspectors who were being assigned to medical hospital units. After 3 February 1945, there was no basic technical training of men in replacement training centers for the Army Veterinary Service for the remainder of the war period.

Enlisted Technicians' School for Army Air Forces Meat and Dairy Inspectors

During the war, the Camp Grant training center also conducted a special program for training enlisted men in the Army Air Forces. Under the terms of an agreement that was reached, on 1 December 1942, between the Army Service Forces which controlled this training center and the Army Air Forces, the existent veterinary instructional staff of that medical replacement training center was temporarily augmented to form a new Enlisted Technicians' School for Army Air Forces Meat and Dairy Inspectors. Between the opening date and its closure, in August 1943, the Enlisted Technicians' School for Army Air Forces Meat and Dairy Inspectors enrolled 1,147 enlisted students in an 8-week course which was conducted seven times; of this number of students, 1,027 completed the course. The course was entirely technical in nature—being given only to Army Air Forces selectees who had already completed a course in basic military training—and included 384 hours of instruction in the following subjects:

Subject	*Hours*
Dismounted drill	16
Physical training	24
Veterinary hygiene and sanitation	30
Veterinary anatomy	30
Veterinary bacteriology	22
Meat and dairy hygiene	170
Veterinary administration	46
Inspections and tests	14
Open time	32

Medical Department Enlisted Technicians Schools

In the discussion of training of veterinary enlisted personnel at Medical Department schools during World War II, reference is necessarily made to the Course for Veterinary Technicians that was being conducted in its peacetime 22d session (1 February to 31 May 1940) at the Army Veterinary School. On 3 July 1940, this course was shortened and, beginning in September, was rescheduled at 3-month intervals. The changeover to the wartime Course for Veterinary Technicians was initiated by the Surgeon General's Office. On 31 July 1940, this action was generally confirmed by a War Department authorization for establishing any variety of specialist courses suitable and needed for the training of Medical Department personnel in time of war. Pursuant to existing mobilization regulations of the Army which provided for the establishment of such courses in existent service schools or hospitals where replacement center facilities were not readily available (as they were not at the time), the Surgeon General's Office established such courses at the Army Medical Center and at 10 or more general hospitals in the Zone of Interior. The original Course for Veterinary Technicians was considered as one of such specialist courses.



FIGURE 2.—Training veterinary enlisted men in feeds and forage inspection in the Course for Veterinary Technicians, Medical Department Enlisted Technicians School, Army Medical Center, Washington, D.C., August 1943.

After the conduct of two shortened sessions, or the 23d and 24th sessions, the Course for Veterinary Technicians was transferred, during March 1941, from the operating responsibility of the Army Veterinary School to the newly established Medical Department Enlisted Technicians School, Army Medical Center (figs. 2 and 3). During the same month, the newly opened School for Medical Department Technicians, William Beaumont General Hospital, was requested by the Surgeon General's Office to provide for the operation, also, of the Course for Veterinary Technicians. Each of the two enlisted technicians schools included a veterinary section with instructional staffs of three Veterinary Corps officers and four to six enlisted men. The William Beaumont school conducted the course 45 times, and, at the Army Medical Center, the course was conducted 47 times, including the 22d through the 24th sessions that were conducted by the Army Veterinary School. The student output from the Course for Veterinary Technicians totaled 1,642 enlisted personnel before the schools at the Army Medical Center and William Beaumont General Hospital discontinued such training, in 1945.

This course was conducted in the Medical Department enlisted technicians schools to standardize the qualifications of veterinary enlisted personnel. It implemented the program of veterinary basic technical training



FIGURE 3.—Students at the Army Veterinary School, Army Medical Center, receiving instruction in canned food inspection.

which was being given in the replacement training centers during the war and was never considered as a substitute for the on-the-job training that was being given within Army camps or units. Many of the enlisted men, entering the Army Veterinary Service directly from reception centers (that is, having bypassed the center level of veterinary basic technical training), were advanced in their assignments in a veterinary occupational specialty by their detail for such school training during the war.

By 1943, quotas were being established as to the numbers of enlisted personnel that were to be selected and sent to each school from both the replacement training centers and the major echelons of command within the Zone of Interior. As a result of this quota system, there were several problems. For example, the schools had cause to complain against the quality of selectees sent to them from the replacement training centers; the latter did not seem to comply always with requirements to "in the selection of men to fill quotas, [give] careful consideration * * * to their adaptability, intelligence, and previous educational attainments" (*10*).

The service command veterinarians also protested that the quotas meant a loss of men from their operations which were already reduced to barest minimum strength pursuant to local command programs of personnel economies. In other instances, service command and unit veterinarians indicated their opinion that their personnel were sufficiently trained to meet local

requirements and thus there was no real need to select personnel to satisfy such quotas. In answer to such comments, the Surgeon General's Office had earlier advised that such arguments were not the answer to the overall needs to obtain and maintain a minimal trained force which would be needed to satisfy future requirements when Army camps would be expanded, for organizing new units, or for oversea replacement. The quota system for selecting students for the Course for Veterinary Technicians was started in early 1941; prior to that time, the Surgeon General's Office had selected and nominated the personnel who were to be trained in the schools.

This wartime course had a dual purpose; graduates from the two Medical Department technicians schools were qualified both as veterinary animal service technicians and as meat and dairy hygienists. The course title itself became misleading, during World War II, because the words "veterinary technician" gradually assumed limited application as pertaining to personnel qualified or engaged only in caring for animals. In April 1945, the title of the course was lengthened to Course for Veterinary Technicians and Meat and Dairy Hygienists. Later that year, the course was divided into two separate courses—one for veterinary technicians and the other for meat and dairy hygienists. Thus, insofar as school training was concerned, the term "veterinary technician" was applicable to veterinary animal service personnel only after 1945.

The dual-purpose Course for Veterinary Technicians which was conducted originally by the Army Veterinary School and then converted and transferred to the Army Medical Center's enlisted technicians school was at variance with the course of the same name which was established at the William Beaumont General Hospital's enlisted technicians school. Some of the differences may be accounted for by the fact that the latter facility did not have a veterinary laboratory at the onset such as was available in Washington, D.C., but it was located adjacent to an area having a large number of military animals. Actually, at the beginning, several newly formed veterinary hospital units were located at nearby Fort Bliss, Tex., which also had a sizable station veterinary hospital. Eventually, these differences in the course schedules of the two schools were narrowed, and greater emphasis was placed on training in military veterinary food inspection.

During August 1943, Headquarters, Army Service Forces, issued a 12-week training program for use as a guide in the conduct of the dual-purpose Course for Veterinary Technicians at both schools (table 13). A revised program was approved in July 1944, and this included the arrangement of technical subjects into 6 weeks' training in animal service followed by 6 weeks' training in veterinary food inspection. Another revised program of the school course appeared on 7 April 1945, and this, significantly, amended the course title to Course for Veterinary Technicians and Meat and Dairy Hygienists. Insofar as possible, these programs were adopted at the

schools, but difficulties were continuously experienced in finding suitable facilities in the vicinity of El Paso, Tex., that would provide field training to supplement the classroom or didactic instruction in meat and dairy hygiene.

TABLE 13.—*Programs for the Course for Veterinary Technicians, 1943–45*

Subject	29 Aug. 1943	26 June 1944	7 Apr. 1945
	Hours	*Hours*	*Hours*
Concurrent basic military training	108	108	48
Army orientation	----------	----------	24
Athletics and mass games	----------	----------	48
Total	108	108	120
Veterinary anatomy and physiology	20	20	20
Veterinary hygiene and sanitation	18	18	14
Veterinary first aid and emergency medical treatment	36	36	40
Veterinary bacteriology and parasitology	20	20	18
Veterinary pharmacology	30	30	30
Horseshoeing	8	8	8
Roentgenology	15	15	15
Minor surgery and operating room technique	10	10	12
Forage and grain inspection	42	42	22
Meat and dairy hygiene	115	127	216
Veterinary administration	52	52	37
Field trips	30	42	----------
Examination, tests, and inspections	24	24	24
Open time	48	24	----------
Total	468	468	456
Grand total	576	576	576

Source: (1) ASF Memorandum, 29 Aug. 1943, subject: Training Program for Medical Department Technicians. (2) Training Program for Medical Department Enlisted Technicians, with 1st indorsement thereto, 18 Mar. 1944. (3) Programs of Instruction for Medical Enlisted Technicians, with 1st indorsement, Headquarters, Army Service Forces, 7 Apr. 1945.

Course in Clinical Pathology for Enlisted Specialists

The 3-month Course in Clinical Pathology for Enlisted Specialists (also called the Course for Enlisted Specialists, Veterinary Laboratory Technicians) was established and conducted by the Army Veterinary School in much the same manner and under the same authorization that the veterinary officers' Special Graduate Course in Clinical Pathology was established and operated. Recommendations for this course were made originally in April 1941 by the Surgeon General's Office which then scheduled the opening of the first session on 9 June 1941. It was not continued through the

entire war period, and only 23 personnel were graduated in the six sessions of the course that were held between the opening date and May 1943.

Veterinary Technicians' School, Fort Riley, Kansas

The dual-purpose training of veterinary enlisted personnel in Medical Department Enlisted Technicians Schools was brought to a halt at the Army Medical Center in February 1945 and 3 months later at William Beaumont General Hospital. In the postwar period, the Course for Veterinary Technicians and Meat and Dairy Hygienists was divided into two separate courses, each with a single purpose and each conducted at a separate training facility in more suitable locations. The changes were recommended to Headquarters, Army Service Forces, by the Surgeon General's Office, on 19 October 1945, which then requested (*11*)—

> A course of instruction for Veterinary Technicians, SSN 250, be established as a class I activity at Ft. Riley, Kansas, on or about 14 January 1946 with a capacity of fifteen (15) students. The duration of this course would be six (6) weeks. It would be conducted under the modification of the presently approved program * * *.
>
> A course of instruction for Meat and Dairy Hygienists, SSN 120, be established at the Chicago Quartermaster Depot, Chicago, Illinois, on or about 1 December 1946 with a capacity of fifteen (15) students. The duration of this course would be six (6) weeks. It would be conducted under the modification of the previously approved program * * *.

Both recommendations found acceptance with Headquarters, Army Service Forces. In connection with the new single-purpose Veterinary Technicians Course, the veterinary instructional staff and training equipment of the former school for Medical Department technicians, William Beaumont General Hospital, were moved during the period, 12 December 1945 to 7 December 1946, to Fort Riley, Kans. At the beginning, the new Veterinary Technicians School which was established there came under the control of the Seventh Service Command, but, effective on 25 April 1946, it was reclassified as an activity under control of The Surgeon General. Its instructional staff totaled two veterinary officers, including the school commandant, and four enlisted personnel, who were placed under the supervision of the senior veterinary officer assigned to Fort Riley.

This new course was expressly designed to technically train enlisted personnel for the Army Veterinary Service in the care and management of horses and mules. It was conducted in its first session, beginning on 24 January 1946, as a 5½-week course. However, concurrent with the postwar plans on readjusting the Army's school system, the fifth session of the Veterinary Technicians Course (22 July to 8 November 1946) was considerably lengthened—comprising 640 hours of instruction.

The continuing reduction in the Army's horse and mule strength and the gradual revision of plans for training the postwar Army caused the Surgeon General's Office to discontinue the Veterinary Technicians Course on completion of the fifth session. By that time, 75 veterinary enlisted

personnel had or would have completed this training. The Veterinary Technicians School, at Fort Riley, was discontinued on 9 November 1946.

Meat and Dairy Hygienists Course, Chicago Quartermaster Depot

Concurrent with the establishment of the postwar Veterinary Technicians Course at the short-lived Veterinary Technicians School at Fort Riley, the training of veterinary enlisted meat and dairy hygienists was started at the Chicago Quartermaster Depot, which was also the place of operation of the Veterinary Corps officers' Meat and Dairy Hygiene Course. This establishment of training for enlisted meat and dairy hygienists was recommended by the Surgeon General's Office and approved by Headquarters, Army Service Forces, on 13 November 1945; the schooling facilities needed at that depot were provided, on request, by the Office of the Quartermaster General. The first session of the Meat and Dairy Hygienists Course was convened on 3 December 1945 with 7 enlisted enrollees; by the end of the next year, 162 veterinary enlisted personnel had completed the course. Conducted originally as a 5½-week course, it was later developed into one lasting 8 weeks (table 14).

TABLE 14.—*Programs for the Meat and Dairy Hygienists Course*

Subject	5½-week course	8-week course
	Hours	*Hours*
Veterinary administration	21	61
Fresh and frozen meats	37	41
Sausage and specialty meats	10	10
Cured and smoked meats	11	9
Canned meats and rations	12	8
Fats and oils	4	4
Fish and seafood	6	7
Poultry and eggs	40	42
Milk and dairy products	38	39
Food poisoning	2	3
Inspection procedure	6	6
Establishment inspection	3	6
Packing and storage	10	----
Refrigeration and warehousing	----	8
Commandant's time and tests	32	38
Physical training	----	30
Troop information	----	8
Total	232	320

UNIT TRAINING

The training of veterinary personnel, both officer and enlisted, did not stop with their completion of the courses which were conducted at the

school or training center levels. It was continuous during the military service of the individuals, while they were in Army camps and units, and in the Zone of Interior as well as in the oversea theaters. Most of this training was largely applicatory in nature as contrasted to didactic instruction in school classrooms.

Officer Replacement Pools

Although each Army camp and installation in the Zone of Interior that had a veterinary detachment operated its own programs for introducing newly assigned personnel into its organizational operations, one of the more important of these training programs at camp level involved those programs which were conducted in officer replacement pools. During December 1941-January 1942, such pools for Veterinary Corps officers were established, pursuant to War Department authorization, at 11 medical installations, replacement training centers, depots, and ports; a few more pools were added later. These pools were located at the Army Medical Center; William Beaumont General Hospital; the replacement training centers at Camp Grant and Camp Lee; the ports of embarkation at New York and San Francisco; the general depots at Boston, San Antonio, Seattle, and Lathrop; the quartermaster depots at Chicago, Fort Worth, Kansas City, and Oakland; and the remount depot at Fort Robinson, Nebr.

The capacity of the pools, at any one time, in terms of number of personnel, was not to aggregate more than 50 unassigned veterinary officers, who were to be regarded as constituting a reserve force of veterinarians in refresher and preparatory military training, pending their initial assignment as "filler" or "loss replacement" veterinary officers to newly forming or existent units (*12*). The officer replacement pool system, which then came into operation, more or less replaced the procedures previously used by the Surgeon General's Office in the pre-World War II emergency periods, when a small surplus number of Veterinary Reserve Corps were being ordered to active duty for preliminary training at the larger Army camps, remount purchasing and breeding areas, and depots prior to initial duty assignment.

The training which was conducted varied according to the parent installation of the replacement pool. Subsequently, the Surgeon General's Office developed a master schedule of training which was promulgated as a guide by Headquarters, Army Service Forces, for adoption at all pools. This prescribed a 4-week course, having 192 hours of training as follows:

Subject	*Hours*
Military basic and general administration	45
Veterinary administration	10
Veterinary field service with animals	3
Veterinary food inspection	102
Miscellaneous, including "open time"	32
Total	192

This course was divided into two phases, the academic and the applicatory. The latter, also called on-the-job training, was obtained by the attachment of the unassigned veterinary officers so that they would receive the maximum training possible by actual performance of the major duties of the position in which training was received.

In May 1944, Headquarters, Army Service Forces, amended their earlier schedule for training veterinary officers in the replacement pools by promulgating a course having 48 days of on-the-job training. The change for the longer course was occasioned by the growing need to amend the original purposes of the replacement pools. These pools were now being filled by veterinarians who were being inducted into the Army as enlisted men and by recent graduates from civilian veterinary colleges who had completed their education while holding Medical Administrative Corps officer appointments or under the auspices of the Army Specialized Training Program. The personnel were reviewed for qualifications for additional military training and assignment as Veterinary Corps officers prior to their release from the officer replacement pools.

After the end of the active war hostilities, the purpose of the pools was again changed because they were filled largely by veterinary officers who were returning from the oversea theaters and were awaiting separation or new assignment orders. By the end of 1945, many of the replacement pools were closed. Only five continued in operation: at the New York port and the Chicago, Kansas City, Seattle, and Lathrop depots (*13*). Information on the number of officers processed through these replacement pools is fragmentary, but at least 650 veterinary officers were sent through the pools at the Kansas City Quartermaster Depot, San Antonio Army Service Forces Depot, and New York Port of Embarkation during the war period.[2]

Small Unit Training

Informal programs (other than those in the officer replacement pools) were undertaken at camp level to introduce or orient newly assigned personnel on the organizational operations of veterinary detachments inside of the Army camps (as well as at the depots, ports, hospitals, and other installations) in the Zone of Interior. Such programs were essential in the autonomy and part of the internal administration of each camp, depot, or

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[2] After 1 May 1946, Headquarters, Army Service Forces, authorized the continuation of only the veterinary officers replacement pool at the Chicago Quartermaster Depot, but, on 31 March 1947, this pool was also closed by the War Department. During a part of this period, this pool facility was the central administrative agency for the Army Veterinary Service in the Army's postwar plan which was to provide refresher professional training to Medical Department officers prior to their separation from the military service. Though some extensive plans were made to establish 12-week training in large animal and small animal practice, in food inspection, and in laboratory work for 25 to 50 veterinary officers at remount depots, the Chicago Quartermaster Depot, and the Army Veterinary School, only a few Veterinary Corps officers (probably five in number) volunteered for delay in their release from the Army in order to undertake a refresher course at Government expense.—E. B. M.

port veterinary detachment; pursuant to Army regulations, the conduct of detachment training to insure the proficiency of detachments was the responsibility of the veterinary officer commanding that detachment. At times, on account of shortages in the number of personnel who were available, service command veterinarians in the Zone of Interior favored on-the-job training of camp veterinary detachments rather than to detail personnel to military branch service schools for training. The extent of such training, during World War II, obviously varied because no two detachments were internally administered in the same way. There is no available record to indicate to what extent the Surgeon General's Office vitiated the training at camp level as it had done in World War I. Information is available, however, regarding the training of the units which were organized in the Zone of Interior for oversea deployment.

After World War I, tactical unit training was almost forgotten or disappeared as peacetime economy forced the Army into garrisons and a minimal day-to-day existence. The onset of World War II saw only a few veterinary units in the Army formation: two company elements of medical regiments and a medical squadron's veterinary troop in the United States. These units were at "peace strength" or skeletonized so that tactical unit training for Army Veterinary Service was regarded as practically nonexistent.

During the war years, the number of veterinary units was increased to more than 200—including six types of such larger units as hospitals, companies, and troops and about the same number of types of smaller units called detachments or cellular teams. With the exception of one unit, the larger veterinary units (21 in number) were organized and trained in the Zone of Interior, and one-third of the detachment-size units (or 61) likewise were organized and trained in the Zone of Interior—the remainder being developed overseas. The training of these units in the Zone of Interior was variable, and at no time was a unit training program specially designed for them.

Many of the wartime units, particularly the veterinary hospitals and companies, were brought into existence by assigning cadres of trained officers and men from Army camp detachments and existing units who would train the untrained and newly assigned personnel. Later, units were formed by the assignment of individual personnel who, under the preactivation training system, were previously trained for such assignment at service schools, officer replacement pools, or training centers.

Unit training centers were established by the Army Service Forces at Camp Ellis, Ill., at Camp Plauche, La., and at Camp Sibert, Ala. However, these centers were rarely used for training the veterinary units which were newly organized during World War II. Instead, the units were activated near places where they could enter into functional training. Thus, Fort Bliss and Camp Hale, Colo. (home of the Army Ground Forces Mountain

Training Center) became focal points for activating and organizing many of the veterinary animal service units and detachments; Fort Clark, Tex., and Fort Riley likewise had a large number of animals, mounted units, and each had a station veterinary hospital, so that other veterinary animal service units were brought into existence there.

The veterinary food inspection detachments, on the other hand, were activated in the Zone of Interior at a dozen or more Army camps at which suitable facilities were readily available to provide functional training in the sanitary inspection of food animals at slaughter and in food surveillance. After the winter of 1944–45, under the conditions of preactivation training, several food inspection detachments were activated and trained together at the Army Service Forces Training Center, Fort Lewis. These units completed their training as a unit in a relatively short period of time because their schedules were less disrupted by the admixture of untrained personnel such as happened during the unit training under the older cadre system of developing new units.

In the planning for redeployment of units, after the end of active hostilities in the Mediterranean and European theaters, unit training was reviewed as urgently requiring the facilities of three Army Service Forces training centers. It was contemplated that Medical Department units on return to the United States would have to be retrained for eventual redeployment to the Pacific theaters. Between V–E Day and V–J Day, only 23 Medical Department units, having seen active service in the European and Mediterranean theaters, were entered into the training centers for redeployment training; these units included the 71st Veterinary Food Inspection Detachment at the Army Service Forces Training Center, Fort Lewis. Several similar type units were redeployed direct to the Pacific theaters, but a greater number, including 13 food inspection detachments newly activated in the Mediterranean and European theaters, which were scheduled for redeployment, either were not shipped from theaters or were not reshipped from the Zone of Interior after they had arrived.

Training in the Oversea Theaters

The training of veterinary personnel and units was continued after their arrival in the oversea theaters. For the most part, such training was purposely conducted only to indoctrinate and orient them, after arrival, in matters peculiar to the veterinary situation of the theater. Nowhere was this nearly as comprehensive and extensive as the wartime training system that was developed in the Zone of Interior. There were exceptions; for example, long after the Africa-Middle East theater had passed into a standby basis, the theater veterinarian noted a need to better qualify veterinary enlisted personnel by training them on the surveillance inspection of the Army food supply. Elsewhere, such as in the Mediterranean theater and in the

Central and South Pacific Areas, incoming veterinary food inspection detachments and veterinary sections of quartermaster refrigeration companies were required to undergo more training in food surveillance because they had been essentially trained in the Zone of Interior along the lines of rendering at-slaughter food animal inspections. The latter training did not reflect on the practicality of the training system in the Zone of Interior. Mention is made here that the Army Veterinary Service overseas inspected all of the Army's foods, whereas, in the Zone of Interior, their training gave little emphasis on inspecting foods of nonanimal origin.

Probably, the greatest conversion training of veterinary units and personnel occurred in the Southwest Pacific Area and in China, Burma, and India. In the Southwest Pacific Area, 16 veterinary animal service sections or detachments were inactivated, and their 125 personnel locally retrained as food inspectors. This had become necessary because the planning for extensive utilization of animal transport for campaigning on the jungle islands of the Southwest Pacific Area was discontinued after the units had been requisitioned and scheduled for shipment from the Zone of Interior. In the interim, Australia (like New Zealand in the South Pacific Area) suddenly and unexpectedly had become a major source of food supply to the Armed Forces in the Pacific.

In India-Burma, the campaigns against the Japanese to clear the way for the Stilwell and Burma Roads and the strategy for support of the Allied-sponsored Chinese military forces originally created urgent demands for veterinary animal service personnel. However, the gradually increasing needs for a more expansive program of food procurement and food surveillance inspection eventually saw many of the existing units in the theater broken up to form 14 food inspection detachments for deployment in China. These detachments also had to be specially trained. They were entered into a 4-week training (totaling 188 hours of instruction) which emphasized abattoir operations and at-slaughter inspections; the sanitary situation and resources of the local livestock and food industries; the proper handling, storage, and conservation of foods; and the protection of troop health against food supplies of local origin that might have been contaminated or spoiled.

The orientation and indoctrination of veterinary personnel and units arriving in the theaters was different from the problems of conversion training. It was a prerogative usually assumed by each theater veterinarian to improve the internal administration of the local veterinary organization and to acquaint new arrivals of their purpose and their place within the organization and mission of the theater as a whole. The manner and the extent, in which this was conducted, varied among the theaters. In the Central Pacific Area, for example, this orientation was quite complete and successfully conducted at two provisional veterinary hospital organizations on Oahu, T.H., because, until late 1944, almost all personnel arriving in the theater came through this single portal of entry in the Hawaiian Islands. This was

equally true in England, which became the portal of entry during the buildup and organization of the European theater that lasted for a considerable length of time before active ground combat operations were started. There, for example, veterinary officers were given last-minute instructions on European veterinary medicine and practices before deployment to civil affairs and military government in the liberated and occupied countries on the European Continent. In the Southwest Pacific Area, the orientation of veterinary personnel in Australia emphasized at-slaughter inspections and processing of foods in establishments, whereas later, in New Guinea, these personnel were indoctrinated on the sanitary defects of nonperishable foods and conservation measures to minimize food spoilage and losses in the tropics. Army Air Forces veterinary personnel and detachments were given the same instructions as were those of the Service Forces.

In India-Burma and China, the orientation and indoctrination was so extensive at times as to approach the level of training conducted in the Zone of Interior. This orientation and indoctrination training of the Army Veterinary Service in the two theaters was purposefully divided into that conducted for the personnel and units who were used in inspecting the Army's food supplies and that for the personnel and units who were concerned with the Chinese military forces.

The former group was oriented and indoctrinated largely in the local British, Indian, and Chinese methods of processing and handling foods and in sanitary inspection procedures. The latter group, which included the veterinary instructional personnel and those on liaison duty with the Chinese military forces, prior to assignments, was specially instructed at the Rāmgarh, India, training center and, later, at the Yünnan Field Artillery Training Center at K'un-ming, China. Their instruction necessarily emphasized horseshoeing, the pack loading of animals, field veterinary service and management of animals, and the several animal diseases which were seriously threatening the movement of the Chinese armies and divisions. It was a locally expressed opinion that Army veterinary personnel might have been better trained or experienced in these matters, but, on the other hand, the personnel were being required to supervise animal matters in the Chinese forces that in the past were normally taken care of by Cavalry, Field Artillery, and Quartermaster officers. Indoctrination and orientation also included the discussion on Chinese customs and, of course, the training in small arms firing and unit protection against enemy infiltration.

INSTRUCTIONAL SERVICES

In addition to training veterinary personnel, Veterinary Corps officers also rendered instructional services to the combat arms and other service branches (including the Medical Department). During World War II, such training activities were greatly expanded in the Zone of Interior and, in the oversea theaters, were extended to Allied and cobelligerent armies.

Veterinary Instructional Service in Zone of Interior

There is no information available regarding the extent of the veterinary instructional services which were conducted in garrison schools at the Army camp level or in units. At the branch service school or training center level, on the other hand, available information indicates that such services were provided by the Army Veterinary Service to more than 47,100 officers and enlisted personnel, including those belonging to the Medical Department.

During 1939–40, veterinary officer instructional services were being rendered in the special service schools for the mounted combat arms and services at Fort Benning, Ga., Fort Belvoir, Va., Fort Riley, and Fort Sill, Okla. The Cavalry School, at Fort Riley, and the Field Artillery School, at Fort Sill, each had a veterinary officer assigned as a full-time instructor. At the Cavalry School, this officer conducted instructions on a variety of topical subjects relating to the care and management of Army horses and mules. The subjects, all or a few, were included in five officers' courses and two enlisted men's courses; the student output from these courses in the period 1940–45 totaled more than 4,400 Cavalry officers and 1,041 enlisted personnel. The veterinary instructional services in the Field Artillery School were almost as extensive in scope. At both schools, the veterinary officers conducted a portion of the enlisted men's courses for horseshoers. Between 10 July 1940 and 23 September 1944, the Fort Sill facility graduated 397 enlisted horseshoers; between 6 January 1941 and 7 June 1945, the Cavalry School graduated 1,054.

Instructional services were provided also to more than 4,800 dog handlers (2,100 Army and 2,700 U.S. Coast Guard) who were trained in the Quartermaster Corps war dog reception centers in the Zone of Interior and to the enlisted pigeoneers personnel of the Signal Corps. In both instances, the basic doctrine for training these personnel on the care and management of the Army dog and the Army signal pigeon was developed in cooperation with the Veterinary Division, Surgeon General's Office; the training manuals that had been developed previously without veterinary professional assistance were now corrected or amended to advance the practices of dog and pigeon care and management and the relevant animal disease controls and prevention in the Army. In connection with instructions to pigeoneers, the veterinary officers both at Fort Monmouth, N.J., and at Camp Crowder, Mo., had prepared and assembled extensive notes which were incorporated in the Signal Corps manual on the signal pigeon.

The mobilization training program of the War Department, which was designed for use in basic military and technical training of Signal Corps enlisted personnel at replacement training centers, expressly provided for the basic technical training of pigeoneers (MOS 560) to include 25 hours of veterinary instructions on pigeon care and management. This program was conducted at Fort Monmouth and then, after the fall of 1942, at Camp

Crowder. A similar program was developed to train Quartermaster Corps officers and enlisted personnel to be dog trainers, who were identified as MOS 4371 for the dog training officer and MOS 458 for the enlisted dog training. Therein, approximately 15 percent of the total instructional period in the 8- to 12-week courses included such subjects as emergency first aid, care and management of sick and wounded dogs, detection and prevention of commonly occurring diseases, kennel management, grooming, dog rations and feeding and watering transportation, and use of the dog gas mask. The veterinary officers in the Columbus Depot participated in the Packaging, Processing, and Packing Course that was conducted for the training of Quartermaster officers in the preparation of supplies for domestic and oversea shipment.

Another military branch school which provided veterinary instructional services was the Chemical Warfare School, Edgewood Arsenal. In its Medical Department Officers' Course, instructions were given, by veterinary officers who were assigned to the station, in such subjects as the effects of chemical agents on animal health and efficiency, and the defense and care (or decontamination) of animals and troop food supplies in the event of chemical warfare attack.

During World War II, veterinary instructional services were used extensively in training Medical Department personnel other than veterinary. Within the Medical Department Professional Service Schools, veterinary officer instructors from the Army Veterinary School and the Medical Department Enlisted Technicians School participated in four medical courses. In the 8-week Tropical and Military Medicine Course (originally designated as the 4-week Tropical Medicine Course), approximately 1,700 Medical Corps officers were provided 2 to 12 hours of instruction on military food hygiene and viral diseases. Also, there was the Course in Food and Nutrition in which the principles of military meat and dairy hygiene were described to Sanitary Corps officers who were being trained for duty as medical nutrition officers. Much the same scope of instructional services, including food sanitation, lasting about 53 hours per session, was provided for female dietitians attending the Hospital Dietitians Course. Part of the Course for Medical Department Laboratory Enlisted Technicians in the Army Medical School and the Medical Department Enlisted Technicians School was conducted by Veterinary Corps officers.

At the Medical Field Service School, the Department of Field Veterinary Service provided instructional services in the Officer Candidate School for Medical Administrative Corps Officers, in the Medical and Field Sanitary Inspectors Course, and in the Officers' Refresher Course. The last-named course was attended by Medical Corps, Dental Corps, and Veterinary Corps officers. In this course, all student officers were given an hour's lecture on veterinary field service, but after mid-1943, an additional 4 hours were added to include instruction and demonstrations on the subjects of military

food hygiene, the evacuation of wounded personnel by pack animal, and dehydrated foods. Altogether, more than 26,000 Medical Department officers completed this training course in the 73 times that it was conducted; its veterinary officer output, totaling 677, comprised only 2.5 percent.

The Medical Field Service School's Medical and Field Sanitary Inspectors Course (originally called the Medical Inspectors Course) was inaugurated during November 1942, but it was not until August 1943 that its student Medical, Sanitary, and Medical Administrative Corps officers were given some instruction by veterinary officers. At that time, the Veterinary Corps officers were being removed from the organization of Infantry divisions so that these medical, sanitary, and administrative officers had to be prepared to perform such duties. Their veterinary instructions—comprising a total of 21 hours during the courses held during 1945—included lectures and demonstrations on sanitary food inspection, the sanitation of food establishments, and the handling of canned, frozen, and dehydrated foods in messhalls. In the Officer Candidate School for Medical Administrative Corps Officers, the Department of Field Veterinary Medicine provided 4 hours of instruction in the course that was conducted 26 times.

Instructing Allied and Cobelligerent Military Veterinary Services

Veterinary instructional services were conducted in the oversea theaters largely for improving the Allied-sponsored Chinese military forces in India-Burma and China and the cobelligerent Italian forces in the Mediterranean theater. At the request of the Philippine Army, 11 of their veterinary officers (and some few enlisted men) were instructed on military food inspection by the Army Veterinary Service of the Philippine Base Section command of the Southwest Pacific Area. In the Mediterranean theater, the Veterinarian, Fifth U.S. Army, supervised the establishment of training courses for the personnel who comprised the cobelligerent Italian Army's veterinary hospital units that were attached to, and were deployed in rear echelon support of the pack trains of, the U.S. corps and combat divisions. Veterinary Corps officers assigned to the U.S. supervisory regiment and on liaison duty with the Italian veterinary units also provided a limited amount of technical assistance to these Italian hospitals which were assigned to the theater's Services of Supply remount depots.

In the China-Burma-India theater, reorganized in November 1944 into the India-Burma and the China theaters, veterinary instructional services to the Allied-sponsored Chinese military forces comprised the major activity of the Army Veterinary Service. This was started soon after the arrival, in May 1942, of the first contingent of U.S. troops that followed the Military Mission to China under Maj. Gen. (later General) Joseph W. Stilwell who had seen the Japanese cut up and disperse Generalissimo Chiang Kai-Shek's armies. A small part of these troops retreated out of Burma into India, and the other and larger share that survived returned to China. The Chinese

forces which came into India were temporarily held there in a new project of training and re-equipping them for the future offensives that were to reopen the Burma Road into China. The training of these Chinese forces in India, which were also called the X-Force, was undertaken at the U.S. training center established at Rāmgarh.

Later, the Chinese forces which had been forced to retreat out of Burma back into China were started in their training by the U.S. Army. These Chinese forces—also referred to as the Y-Force—were trained for the most part in and about K'un-ming. From the original U.S. training center in India, four veterinary personnel were ordered during February 1943 to the new Yünnan Field Artillery Training Center, and two others were ordered in the next month to the Yünnan Infantry Training Center, also near K'un-ming. The training program in India gradually came to a halt, as the X-Force was deployed with the Allied forces that cleared the Japanese out of northern and central Burma. This program for the Y-Force was stopped when they were moved out of their training to stem the Japanese drive southward into eastern China. During this period, a third group of Chinese armies and divisions—designated as the Z-Force—was brought into the strategic plan for training, equipping, and eventual deployment. The Z-Force, developing in eastern China, however, was not too far advanced in its training when the threatening enemy drive in its direction caused the abandonment of original plans. The training of these three Chinese forces was conducted formally at training center level and included the training of the individual as well as of the unit. The Army Veterinary Service trained more than 2,000 Chinese military personnel including veterinary officers. After their training, Veterinary Corps personnel, in liaison duty with the Chinese combat forces, continued the training of the Chinese at the unit level.

In order to conduct this training of the Chinese military forces, the U.S. forces in the China-Burma-India theater were organized, in March 1942, to include the so-called Chinese Training and Combat Command. This comprised a headquarters group, the Training Group which operated the training centers in Rāmgarh and in K'un-ming and the Liaison Group which included the U.S. personnel assigned liaison duty with the Chinese armies and divisions. The Training Group, in addition to the operation of the aforementioned centers, established training schools for the Chinese Y-Force at Ta-li, in October 1943, at Yen-shan, in November 1943, and in several other places in central South China. In November 1943, Veterinary Corps personnel established training of the Z-Force at Kuei-lin, China. By the summer-fall of 1944, the training at center level was discontinued, except at the Yünnan Field Artillery Training Center, and was replaced in part by training, by liaison personnel, within the Chinese military units (fig. 4). Most of the liaison personnel were in China or were moving there from Burma at about this time. These personnel, as were the remaining training center assigned personnel, were reassigned to the Chinese Combat Command



FIGURE 4.—Instructing Chinese in the proper methods for securing loads on the Phillips pack saddle, Field Artillery Training Center, Chinese Training Command, Yünnan, China.

and the Chinese Training Command, respectively, which were formed, in January 1945, from the breakup of the original Chinese Training and Combat Command, shortly after the China theater came into existence as a separate entity.

The center training for the Y-Force, at K'un-ming, was aided by the detail of instructional groups to certain Chinese units which could not, or would not, send their personnel to K'un-ming. During September-October 1943, six Veterinary Corps officers were ordered to establish a school course for training the Chinese 11th and 20th Group Armies at Ta-li. In November 1943, Training Instructional Group No. 4, made up of the same number of veterinary personnel, was ordered to organize veterinary training schools for the Chinese 8th, 52d, and 60th Armies at Como, Yen-shan, and Meng-tzu. On 30 October 1943, the Yünnan Infantry Training Center's veterinary school was closed. The new training schools with the Chinese armies were closed during the spring of 1944. After that time, only the Yünnan Field Artillery Training Center remained in operation, becoming the chief veterinary training facility for Chinese forces until V–J Day.

The developing emphasis on unit training, as contrasted with the emphasis on training in centers, saw the Veterinary Corps officers on liaison duty establish a variety of unit training programs within the Chinese armies and



FIGURE 5.—Classroom instruction conducted by U.S. Army Veterinary Corps officer through a Chinese interpreter to Chinese veterinary officer students at Veterinary School, U.S. Army Training Center, K'un-ming, China.

divisions. Such personnel had been on duty with the Chinese forces as early as the summer of 1943, but it was not until January 1945 that a sufficient number of them had become available for assignment to all Chinese divisions and armies. On their arrival in the Chinese units, the liaison veterinary personnel set up courses for training the unit's veterinary officers and enlisted men, operated a horseshoeing school, and organized schedules to improve the methods of animal care and management and the means of pack loading animals. Their task was not an easy one because the instructions were given through a Chinese interpreter, the training aids were unavailable, equipment was necessarily improvised, and the Chinese by habit held little regard for enhancing the efficiency and military life of animals (fig. 5). For example, to them, shoeing was a disgraceful menial task and, even after that attitude was overcome, horseshoe-making equipment had to be improvised before the new Chinese army horseshoers could even be started in their training. Against such hindering obstacles, however, much was accomplished by the Army Veterinary Service to increase the efficiency of forces whose mobility was so much dependent on their animals.

During the period that U.S. forces were located in China, the previously mentioned instructional services were expanded to include assignment of two Veterinary Corps officers to the faculty of the Chinese Army Veterinary

College, An-shun, China. Their assignment followed the grant of approval by the Commanding General, China-Burma-India theater, in July 1944, to a request initiated by the Chinese National Health Administration. In July 1945, arrangements were completed with the Chinese Ministry of War for veterinary college graduates to attend a 4-week postgraduate course at the Yünnan Field Artillery Training Center, K'un-ming. In mid-August 1945, this course, emphasizing clinical veterinary medicine which could not be given at An-shun, was opened at the training center; its enrollment included 23 college graduates and 2 college faculty members.

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CHAPTER VI

Supply and Equipment

The Army Veterinary Service was not a supply service in the sense that it purchased, stored, distributed, or otherwise handled professional veterinary equipment and supplies for the Army; it was a consumer. Nor was the Army Veterinary Service materially involved (that is, as final approving authority) in the planning for its own supply; however, some developmental studies were undertaken. These matters originated with the supply activities of the Medical Department as a whole. Individual Veterinary Corps officers and units requisitioned for their supplies in the same manner that the Medical Corps and Dental Corps obtained their supplies; their needs, such as for certain drugs, surgical dressings, and instruments, were often furnished from the same stocks of Medical Department supplies. In fact, the Army Veterinary Service had only little more to do with Medical Department supply than it had to do with the trucks, communications equipment, or weapons that were obtained and were used daily by each veterinary unit and detachment.

Medical Department supply activities, at the level of the Surgeon General's Office, were administered by the Finance and Supply Division—the latter being reorganized in 1942 into the Supply Service. This administrative office organization was assigned functions and had the same degree of responsibility with regard to medical supply that were comparable to those of the Veterinary Division, Surgeon General's Office, regarding its supervision of professional veterinary services of the Army. On matters pertaining to veterinary supply, the Veterinary Division acted as adviser—in a capacity that was comparable to the advisory responsibilities, real or assumed, it had to the Personnel Division, Surgeon General's Office, with regard to veterinary personnel. Requirements planning, the professional opinions on the efficacy of supply items which were to be procured, and the recommendations on the distribution of medical equipment and supplies to veterinary detachments and units comprised the major advisory duties. In addition, the Veterinary Division, Surgeon General's Office, cooperated with the Operations Service in developing equipment tables for field units and with a variety of agencies and service branches which were particularly concerned with equipment and supplies, research, and development. For example, there was veterinary officer membership on The Surgeon General's Medical Department Technical Committee; the Army Committee for Insect and Rodent Control; the Subcommittee on Biologicals, Drug Resources Advisory Committee of the Army-Navy Munitions Board; the Army Service Forces (later, War Department) Inspection Advisory Council; and the Provisions and the Feeds and Forage Technical Committees of the Federal Specifications Board, Bureau of Supply,

U.S. Treasury Department. All of these were concerned in some manner or other with supply to the Army. The Veterinary Division, Surgeon General's Office, also cooperated in the research and development of certain Quartermaster Corps and Chemical Warfare Service equipment and supplies. It must be mentioned, however, that no Veterinary Corps officer was detailed to full-time duty with the Supply Service, Surgeon General's Office, although at least one such assignment was made in World War I, and after that time mobilization planning prior to World War II had projected such assignments. In 1940–41, however, two veterinary officers were trained, presumably for such an assignment, at the Army Industrial College, Washington, D.C.; one was eventually assigned to the St. Louis Medical Depot, St. Louis, Mo., (*1*) where nearly all Medical Department items peculiar to the Army Veterinary Service were stored and from which Army-wide distribution was made.

The costs of Medical Department materiel initially supplied to equip veterinary units which saw service in the oversea theaters varied: For a veterinary food inspection detachment, $109; for the veterinary evacuation hospital, $2,078; and for the veterinary general hospital, $9,013 (*2*). Station veterinary hospitals for the Zone of Interior could be equipped at costs in Medical Department materiel ranging between $1,770 for one of 10-animal patient capacity and $7,263 for a hospital of 150-animal patient capacity. Of course, if the total costs to initially equip these hospitals were to be considered, then one must add also the equipment and supplies which were furnished by the Chemical Warfare Service, Corps of Engineers, Ordnance Department, Quartermaster Corps, and Signal Corps.

MEDICAL DEPARTMENT PROCUREMENT AND DISTRIBUTION

At the onset of World War II, the actual procurement of Medical Department equipment and supplies was divided between the New York General Depot, N.Y., which had a Medical Section, and the St. Louis Medical Depot. A few items were purchased also by the medical depot sections of general depots which were located in San Francisco, Calif., and San Antonio, Tex. Of these, St. Louis, was, and continued to be, throughout the war, the central location for handling materiel solely classified for veterinary use (that is, class 8).

Undeniably, shortages in Medical Department materiel were encountered by the Army Veterinary Services in the Zone of Interior, particularly during 1940–42, but, temporary as they may have been, there was no report that professional veterinary food inspection and animal services were seriously affected. Overseas, in certain theaters, shortages in Medical Department materiel existed which did affect the Army Veterinary Service.

Throughout the Medical Department supply system—from procurement districts through the depots to the camp medical supply officers—routinely, there was no real veterinary activity. The veterinary detachments and units

made their needs known, by requisitions, to the local medical supply officers and were only responsible, pursuant to the regulations of the Army, for submitting the requisitions, properly caring for the property which they received, and for practicing supply economy. At various times, their requisition demands were processed through the Medical Department supply system to the Veterinary Division, Surgeon General's Office, for review before procurement and distribution were effected. The latter situation occurred whenever the requisitions called for new (or nonstandard) items or for seemingly unusual quantities of items which were already being handled by the Medical Department supply system. These demands arose when veterinary detachments and units were expanded into new areas of activities; for example, the care and treatment of Army dogs and signal pigeons. Actually, only a few requisitions concerning the professional care and treatment of these animals were favorably reviewed within the Veterinary Division, Surgeon General's Office, because there were so few items specifically required for which standard items could not be substituted.

MEDICAL DEPARTMENT SUPPLY ITEMS

Nearly all of the equipment and supplies professionally used by the Army Veterinary Service were provided by the Medical Department in the same manner that professional supplies came into the hands of Medical Corps and Dental Corps officers. In fact, after 1921 when the separate veterinary supply tables were discontinued, many items in common use by these three professional corps were grouped together for procurement, storage, and distribution.

One class of Medical Department equipment and supply items (class 8) was procured, handled, and issued for the use of the Army Veterinary Service only. Its 164 items (as of the January 1941 edition of the supply catalog) were those that had no other Medical Department use. The cataloging of the veterinary class of equipment and supplies was not greatly changed during World War II; a few items were deleted and some others were transferred as the responsibility of the Quartermaster Corps to supply, but, on the whole, nothing new of major importance was added. This revealed that the supply planning in peacetime generally was such that actual veterinary supply was not adversely affected or delayed, as had occurred in World War I, when studies on requirements and on an up-to-date compilation of a veterinary supply table were not begun until after war mobilization had started.

Small Unit Assemblies

In order to facilitate their handling and issue, a great many of the individual items were assembled into kits and chests. Some of these small

unit assemblies were intended for supply to veterinary personnel and facilities operating in the Zone of Interior and to units deployed in the communications zone of a war theater. A number of other small unit assemblies were developed for veterinary field service. The weight, size, and cost data of these are shown in table 15.

TABLE 15.—*Weight, size, and price data of veterinary small unit assemblies*

Item number	Nomenclature	Weight	Size	Price
		Pounds	*Cubic feet*	
8 019 000	Case, hypodermic tablets, veterinary	0. 50	0. 01	$4. 00
8 020 000	Case, mallein test	4. 25	. 33	48. 00
8 021 000	Case, meat and dairy hygiene inspection	10. 00	. 55	30. 85
8 023 000	Case, pocket, veterinary	1. 50	. 02	18. 80
8 024 000	Case, post mortem, veterinary	10. 50	. 25	21. 35
8 029 000	Chest, clipping	51. 50	2. 84	45. 00
7 794 000	Dispensing set, veterinary	150. 00	13. 00	29. 30
9 713 000	Kit, veterinary officer's	8. 75	. 63	31. 00
9 712 500	Kit, veterinary noncommissioned officer's	9. 40	. 48	11. 50
9 805 000	Case, instrument, veterinary noncommissioned officer's	1. 25	. 02	7. 50
9 713 500	Kit, veterinary private's	7. 67	. 37	9. 15
9 805 700	Case, instrument, veterinary private's	. 25	. 01	3. 00
9 802 000	Case, dental, veterinary	35. 00	. 70	110. 00
9 803 000	Case, foot, veterinary	8. 00	. 25	33. 50
9 804 000	Case, forceps, hemostatic, veterinary	1. 25	. 04	25. 00
9 805 000	Case, general operating, veterinary	13. 00	. 49	113. 30
9 806 000	Case, stomach and rectal, veterinary	12. 00	. 60	6. 75
9 807 000	Chest, MD No. 80	155. 00	5. 00	141. 00
9 808 000	Chest, MD No. 81	160. 00	5. 00	50. 00
9 812 200	Chest, veterinary pack A	59. 00	1. 80	37. 00
9 812 500	Chest, veterinary pack B	60. 00	1. 80	34. 75
9 814 000	Chest, restraint, veterinary	84. 00	4. 25	94. 45
9 815 000	Chest, restraint, veterinary, supplemental	94. 00	4. 22	66. 25
9 816 000	Surgical dressing set, veterinary	80. 00	4. 00	38. 25
9 815 400	Gas casualty set, veterinary	165. 00	5. 00	143. 75

Sources: (1) Army Service Forces Catalog, MED 3, 1 Mar. 1944. (2) War Department Supply Bulletin, SB 8–1, 9 Nov. 1944.

In parallel with the development of a medical kit for testing the Army's water supplies for possible contamination by chemical warfare agents, the Medical Research Laboratory, Chemical Warfare Center, Edgewood Arsenal, Md., in December 1944 initiated a project on a field kit which could be used for similarly testing the Army's food supplies. By February 1945, the kit assembly was approved (or standardized) by Headquarters, Army Service Forces; during May 1945, it was included as an item of regular Medical Department supply and was made available to a large number of military units, including those of the Army Veterinary Service. It consisted of the



FIGURE 6.—Food testing kit for detecting chemical warfare agent contamination of foods.

kind of reagents that were useful in conducting simple tests for the detection of mustard gas, nitrogen mustards, cyanogenic agents, and the arsenical smokes and blister gas contamination in foods (fig. 6).

Biologicals

The procurement and distribution of biologicals by the Medical Department supply system were closely supervised by the Veterinary Division, Surgeon General's Office, probably to a more exacting degree than any other group of Medical Department materiel used by the Army Veterinary Service. During 1942, the Veterinary Division, Surgeon General's Office, entered into regular meetings of the Subcommittee on Biologicals of the Drug Resources Advisory Committee, Army-Navy Munitions Board. At these meetings, that part of the Nation's industry which produced biologicals was surveyed as to its capacity to satisfy military requirements for biologicals; later, this planning was conducted in cooperation with the Army Veterinary School, Army Medical Center, Washington, D.C., on request of the Requirements Division, Army Service Forces. The actual procurement of biologicals involved both the output from Medical Department laboratories of certain items and the purchase of others from commercial sources. At the onset of World War II,

the biological products itemized in the Medical Department Supply Catalog included:

From commercial sources through depots:
- Antianthrax serum
- Anthrax spore vaccine (intradermic)
- Tetanus antitoxin

From Army Veterinary School, Army Medical Center:
- Antigens: bovine infectious abortion, glanders, and equine infectious abortion (for complement-fixation tests)
- Mallein (intradermic)
- Tuberculin (intradermic)
- Vaccine, equine strangles
- Vaccine, equine infectious abortion

From corps area medical laboratories:
- Vaccine, autogenous, veterinary

At this time, however, little use was being made of equine strangles vaccine, and it was soon removed from Medical Department supply; the same was true for the laboratory test antigen for bovine infectious abortion. There were several additional biologicals, some in common use in the Army, but they were not itemized until later. These included equine encephalomyelitis vaccine—improved, produced, and distributed by the Army Veterinary School after the late 1930's—and tetanus toxoid of commercial manufacture. The former, appearing first in the supply catalog in 1942, was used in the highly successful program to protect military horses and mules from equine encephalomyelitis which was occurring in enzootic form each year in the United States (fig. 7). The tetanus toxoid appeared in regular supply channels at the same time, but actually it was used earlier in 1939, in a new program to confer a permanent type of immunity against tetanus in a few selected Army animals. The toxoid, however, did not entirely replace tetanus antitoxin which was used whenever a serious wound injury was treated. During 1943, the diagnostic antigens for conducting the tube and the plate agglutination tests for bovine contagious abortion were added to the supply catalog.

The manufacture of a few veterinary biologicals by the Medical Department was continued or revitalized in World War II or whenever commercial or other sources could not fully satisfy Army requirements. Economy in production and distribution was a factor in these activities, but far more important than this was the training it offered veterinary laboratory officers. Certain production procedures which were covered by patent held by a manufacturer of equine encephalomyelitis vaccine were recognized by the Army Veterinary School in its production and improvement of that vaccinal biological for military use; the manufacturer granted license to the Army to use the patented techniques. Aside from the few mentioned, veterinary biologicals generally were procured from commercial sources.

Actually, there were many more kinds of biologicals needed and used by the Army Veterinary Service than were itemized as available through regular Medical Department supply channels. The itemized ones conceivably were



FIGURE 7.—Biological production, Army Veterinary School, Army Medical Center, Washington, D.C.

sufficient for the veterinary services with Army horses and mules, but many others were needed and were obtained for the professional care and treatment of Army dogs, signal pigeons, animal pets belonging to military organizations and personnel, military farm livestock, and the civilian animals which temporarily came under direct military jurisdiction. In regard to the civilian animals, it should be understood that the establishment of civil affairs and military government organization and of civilian aid supply was usually delayed and that the planning for these animals was conducted at levels of military administration (and with a degree of secretiveness) far removed from the veterinary services in the task forces where the civilian animal populations in liberated, captured, and occupied areas during World War II, particularly in the Pacific theaters, were first encountered. Therefore, the biologicals needed for these groups of animals were procured usually through local purchases made by depots and medical supply officers; sometimes they were actually obtained in foreign countries, if available and if the local situation was one of emergency. Among the biologicals most commonly needed were rabies vaccine, anti-canine-distemper serum and virus, pigeon-pox vaccine, anti-hog-cholera serum and virus, and various biologicals for the diagnosis or control of the other serious diseases of livestock (not excluding brucellosis, erysipelas, blackleg, leptospirosis, and salmonellosis). In

1943, camp medical supply officers in the Zone of Interior were authorized to procure biologicals for the protection of Army dogs against rabies and canine distemper.

Difficulties in the veterinary supply of biologicals were encountered with the short life of viable vaccinal agents; also, there were delays in receiving requisitioned supplies, but these delays more frequently arose when the supply depots or supply officers were not fully advised of the specific biological needed, the quantity (dose or vials), and the exact reasons for needing them. There is no doubt that veterinary requisitions were at times as badly written as the scribbled prescriptions handed into corner drugstores in civilian life. In their advisory relationship to Medical Department supply officers overseas, veterinary officers advised against the introduction of specific viable biologicals into areas which were free of the particular disease or which regulated against the importation or use of such agents.

Professional Books and Journals

Until 1943, there was little supply by the Medical Department of veterinary professional books and periodicals (or journals). A book allowance was established during 1942 for hospital libraries in the Zone of Interior, but the books were too few in number and generally were not of the subject matter more urgently needed by veterinary officers. Then, in July 1943, the Surgeon General's Office announced a procedure for the supply of 46 kinds of books to the offices of service command veterinarians, station veterinary detachments, veterinary laboratories and training schools, and to the Army Veterinary Service inside of depots, market centers, remount area headquarters, dog training centers, and ports; each facility was furnished the books that were most needed according to its activities.

Unit Equipment Assemblages

To facilitate the delivery of functional equipment to new veterinary organizations and units, particularly in their preparations for oversea deployment, their Medical Department and other technical service items of equipment and supplies were grouped together into unit assemblages. Earlier assemblages of Medical Department technical equipment and supplies were compiled from War Department approved tables of allowances and from tables of equipment for the specific units that were promulgated later. As of January 1941, the Medical Department Supply Catalog itemized six veterinary unit assemblages: Veterinary Dispensary Equipment (Zone of Interior), Veterinary Pack Equipment (Cavalry), Veterinary Convalescent Hospital (1,000-animal), Veterinary Evacuation Hospital (250-animal), Veterinary General Hospital (500-animal), and Veterinary Station Hospital (150-animal). In January 1942, on the basis of mobilization planning, the Veterinary Division, Surgeon General's Office, recommended that the 13 assemblages for

veterinary evacuation, general, and station hospitals be packed and placed into storage at various places throughout the United States so that they would be available whenever and if these type units would be activated. During 1942, there were added to the six original ones, the unit assemblages for the separate veterinary company, the veterinary troop of a medical squadron (in a cavalry division), and the veterinary company of a medical battalion (in a mountain division); however, planning for these was transient, and the assemblages disappeared from regular Medical Department supply channels before 1943.

Eventually, the unit assemblages that were retained were described as to their component technical items in Medical Department equipment lists. Similar lists were developed for the Medical Department materiel—assemblages for veterinary infirmaries and station veterinary hospital organizations which were being established and operated at the Army camps in the Zone of Interior. During 1944, these several equipment lists were integrated into a new section of the Medical Department Supply Catalog and were regarded as a supplemental annex to War Department approved tables of equipment for veterinary units; that is, the Medical Department items of materiel, because of their great numbers, were enumerated for the units in these equipment lists rather than in the relevant approved tables of equipment which were already lengthy with their entries on other non-Medical Department equipment. Table 16 refers only to the Medical Department materiel authorized for a given unit by citation of the item number of the unit assemblage which was described in the lists.

NON-MEDICAL DEPARTMENT SUPPLY AND EQUIPMENT

The Medical Department supply of technical or professional materiel comprised only a part of the equipment and supplies which were used by the Army Veterinary Service. The latter also obtained items from the Chemical Warfare Service, Corps of Engineers, Ordnance Department, Quartermaster Corps, and Signal Corps. These military services procured, stored, and distributed certain supplies in about the same manner that the Medical Department procured, handled, and distributed medical supplies. Quantitatively for each veterinary unit, their supply greatly outweighed the Medical Department materiel and included gas masks, motor transport vehicles, as well as horses and mules, and armaments.

Protective Equipment Against Chemical Warfare

The supply of protective equipment which would safeguard military animals against chemical warfare agents was the responsibility of the Chemical Warfare Service. However, this equipment, which came into Army supply during World War II, was the result largely of the research and development studies that were undertaken by Veterinary Corps officers in cooperation

with the Chemical Warfare Service. The onset of World War II found the Army without tested or proved equipment that might be used to protect horses, mules, dogs, and pigeons from such chemical warfare agents as were thought to have been developed in Europe during the last decade. There were certain horse gas masks available or left over from World War I, but little was accomplished during the succeeding peacetime years to improve them or to make them protective against the newer chemical warfare agents. In fact, throughout the 1930's (or until mid-1940, at least), the use of Army horses and mules to actually test the protective efficiency of chemical warfare equipment was prohibited.

TABLE 16.—*Weight, size, and price data of Medical Department unit assemblages for veterinary units*

Item number	Nomenclature	Weight	Size	Price
		Pounds	*Cubic feet*	*Dollars*
9 735 200	Veterinary infirmary, ZI	1, 101	132	619
9 734 000	Veterinary dispensary equipment, CZ	576	23	1, 054
9 735 500	Veterinary pack equipment	92	4	74
9 733 500	Veterinary convalescent hospital, CZ, 500-patient.	17, 920	929	7, 745
9 734 500	Veterinary evacuation hospital, 150-patient.	3, 303	172	2, 078
9 736 000	Veterinary station hospital, ZI, 150-patient.	19, 879	1, 111	7, 263
9 736 200	Veterinary station hospital, ZI, 100-patient.	16, 242	902	6, 213
9 736 300	Veterinary station hospital, ZI, 50-patient	11, 775	733	4, 949
9 736 400	Veterinary station hospital, ZI, 25-patient	5, 830	347	2, 202
9 736 500	Veterinary station hospital, ZI, 10-patient	4, 098	281	1, 770
9 736 100	Veterinary station hospital, CZ, 150-patient.	10, 785	498	5, 011
9 735 500	Veterinary general hospital, CZ, 500-patient.	26, 990	1, 612	9, 013
9 733 700	Veterinary detachment, food inspection equipment, medical.	100	5	109

Sources: (1) Army Service Forces Catalog, MED 3, 1 Mar. 1944. (2) War Department Supply Bulletin, SB 8-1, 9 Nov. 1944.

During August 1940, studies were begun at the Chemical Warfare Center on a canister-type mask which would provide greater protection to animals and would be effective against the newer chemical warfare agents. The mask that was developed satisfied the requirements of field trials which were conducted by the Cavalry Board, Fort Riley, Kans., the First Cavalry Division Board at Fort Bliss, Tex., and the Field Artillery Board, Fort Bragg, N.C. Subsequently, on 20 February 1941, the War Department described the Horse Gas Masks M4 and M5 as standard equipment. About a year later, an

expenditure order was issued by the Chemical Warfare Service on the procurement of 39,145 of these masks and, within a short period of time, a technical manual and motion picture films were prepared for training personnel in their use, care, handling, packing, transporting, and inspection. Issues of these masks were authorized for each horse and mule in a theater of operations, with additional numbers for veterinary units and hospitals having animal patients.

There were no major changes in protective equipment for Army horses and mules during the remainder of the war period; in fact, during April 1943, the Army Ground Forces—with its requirements apparently met—indicated that there was no need to continue developmental studies on the masks or on any other kind of equipment (including capes and leggings).

Studies, comparable to the research and development of horse gas masks, were conducted on protective equipment for Army dogs. In the fall of 1942, the Quartermaster Corps inquired into the availability of masks or other protective equipment for dogs which were then being used. This inquiry marked the beginning of studies on the effects of chemical agents on dogs, but it was not until 1944 that field trials with experimental models of dog masks were brought to a final stage. Eventually, the Dog Gas Mask M6–12–8 was approved and made available by the Chemical Warfare Service as an item of issue in the oversea theaters, on the basis of one for each Army dog.

Transportation Equipment

Vehicles and animals were a part of the unit equipment of most veterinary detachments and units which were deployed in the oversea theaters; these were used in the transportation of personnel and equipment, the collection of daily supplies (including rations), and the evacuation of sick and wounded animals. Until August 1942, all vehicles as well as animals were provided by the Quartermaster Corps but, after that time, the supply of motor transport was the responsibility of the Ordnance Department, while the Quartermaster Corps continued to supply the animals which were used with the veterinary leading apparatus and wagons or were used in pack animal transport and to provide the few wagons that were authorized in the larger veterinary hospitals.

There is little need to describe the veterinary leading apparatus because it was not used to any great extent, if at all, in the evacuation of animals during World War II. It was a Quartermaster Corps item of supply and was listed as costing more than $200 each, exclusive of the animals which were used to operate it (fig. 8). Actually, the lead line was impressed into uses other than that of evacuating animals; it was used also to move animals if they were not to be led or driven as a herd. Thus, at a port of embarkation in the Zone of Interior during World War II, a so-called floating picket line was improvised by stretching a sort of leading apparatus between two trucks.

During World War II, the identity of the veterinary ambulance as a



U.S. ARMY PHOTO

FIGURE 8.—Operation of the veterinary lead line.

specific kind of animal-drawn or motor-drawn vehicle and trailer was generally lost in the use of a variety of motor vehicles and semitrailers to transport sick and wounded animals. What was referred to as the Quartermaster Corps horse ambulance in 1940 soon became the two-wheel, two-horse trailer van (fig. 9), and the trucks specially fitted with stock-rack bodies were often replaced overseas with trucks that had no special sides to prevent animals from falling off or jumping over the sides of the truck body. In fact, almost any type of 2½-ton or a 4- to 5-ton truck could be, and was, used to transport animals to veterinary hospitals. In the Mediterranean theater during operations in mountainous areas, 6-ton semitrailers drawn by tractor truck were found to be particularly hazardous in the successful evacuation of the sick and wounded animals from pack trains of the Fifth U.S. Army, and these semitrailers were replaced by regular motor vehicles.

OVERSEA SUPPLY

Overseas, the Army Veterinary Service obtained its equipment and supplies in much the same manner that it obtained them in the Zone of Interior; namely, by requisition demand on depots. Of course, there were occasions when the required supplies were procured by local purchase or when captured materiel was used. The depot system of supply by the Medical Department overseas was based upon the establishment and opera-





FIGURE 9.—Quartermaster Corps horse ambulance, 1940. A. Sideview. B. Rearview.

tion of field medical branch depots and medical sections of general depots which were located in the combat or army areas and in the communications zone under the control of the theater's services of supply organization. Each depot included a Veterinary Corps officer (in the grade of major) who acted as a special staff assistant to the unit commander. At least 12 such depot units, each with its own veterinary officer, came into existence during the first few years of the war. During 1943, the depot unit just mentioned was removed from the list of approved tables of organization and was replaced by two new kinds of field or theater units. Neither of the new units was specially authorized a Veterinary Corps officer, but some few veterinary officers who had become experienced with their earlier assignments in the original units were retained or became unit commanders.

Medical Department Supply in the Oversea Theaters

By the end of World War II, the utilization of veterinary personnel on full-time duty in field medical depot organizations and operations was negligible. Matters relating to the equipment and supply of veterinary personnel and units in the oversea theaters were chiefly limited to liaison and to the advisory assistance given by theater veterinarians to the medical supply officers who were located in the various theater surgeons' offices. The needs for a particular item or kind of item more often comprised the urgency for veterinary advisory assistance to the theater medical supply officers. Except in two theaters and possibly in a third, the supply needs of the Army Veterinary Service were, in terms of quantity, quality, and time, satisfactorily met. At one time or another, shortages in supply were experienced, but these frequently were transient and were overcome almost as soon as they occurred. A factor contributing to such incidents was the deployment of Army dogs and signal pigeons into oversea areas where the Army Veterinary Service may have been totally unprepared and unequipped to render any kind of professional animal services. In other situations, captured animals were assembled, and local livestock industries were temporarily brought under military control so that there were demands for supplies that were not forseen during the planning for a given military operation. This actually occurred in the European theater where considerable emphasis was placed on a policy in which the Army veterinary animal service was to be confined at the level of emergency first aid treatment in medical dispensaries and which favored the utilization of local civilian veterinary facilities and personnel. Actually, the policy had no value in any theater except in Europe and, even there, certain problems arose; for example, captured animals untested for glanders were used in depots, and sick or wounded guard dogs were evacuated to a British Army veterinary hospital.

The truly real shortages of veterinary equipment and supplies were experienced in the China-Burma-India and the Mediterranean theaters. In the latter, the unexpected and sudden use of large numbers of animals by

U.S. troops—first in the Sicilian campaign and then in the campaigns northward up the Italian peninsula—and the subsequent deployment of Italian Army pack trains and veterinary hospitals created demands for supplies which were not readily satisfied. Even at the end of 1944, the Army Veterinary Service with the remount organization that was supporting the Fifth U.S. Army regarded its medical supply situation as acute.

In the China-Burma-India theater, later divided into the separate India-Burma and the China theaters, the Army Veterinary Service experienced great difficulties in obtaining Medical Department equipment and supplies for its use, but this situation was no different from that for all of the U.S. forces in the theater. Actually, the difficulties were probably caused by the shipping distance and time from the Zone of Interior and by the relative low standing in priority of the theater to receive supplies until the war in Europe was won. One result of this shortage in supply was the hampering effect on the early instructional programs which were conducted for the Chinese military forces by Army veterinary personnel in training schools or centers and by those who were assigned liaison duty with the Chinese field armies and combat divisions; however, local improvisation of training aids by the Army Veterinary Service prevented any serious delay of training. Significantly, self-supply was only a part of the Medical Department supply difficulties in the China-Burma-India theater; there were also the problems in the U.S. supply of veterinary materiel to the United States-sponsored Chinese Army in China and to other Chinese military organizations and in the British supply of veterinary materiel to the Allied-sponsored Chinese Army in India, which was reorganized and trained by the U.S. forces.

These supplies were separately identified as to their sources and recipients in the theater, until the fall of 1944, when the confusion and complexity of the supply procedures which were seen at ports and depots handling, storing, and distributing these different kinds of supplies were brought to an end; at this time, a unilateral U.S. supply for both the U.S. forces and Chinese armies was established. Before this time, in connection with the supply to the Chinese Army in India, British officials were primarily responsible, but the Army Veterinary Service was actually responsible for determining requirements and distributing the British supplies to the Chinese combat divisions. Unfortunately, the British sources did not deliver the kind and amount of materiel which was requisitioned nor were the deliveries effected without some delay. In the supply to the Chinese Army in China, difficulties were experienced with so-called Chinese defense supplies which were being provided by the United States on a lend-lease basis and were distributed by the Chinese National Health Administration. Eventually, this was modified so that greater amounts of the right kind of medical equipment and supplies would be obtained in China and more would be diverted to the military effort. In addition to these two Chinese forces, there was another

one which was not Allied sponsored but was maintained by the Chinese government through its Ministry of War. It was supplied by a Chinese Services of Supply organization, comparable to the China theater's U.S. Services of Supply organization, and was also responsible for any local procurement of military supplies in China. The Chinese organization was provided Veterinary Corps personnel who were only partially successful in their attempts to develop a veterinary supply system in the Chinese forces that would have paralleled the Medical Department system of supply in the U.S. Army. Originally, their veterinary supply was administered as a separate activity of the Chinese Horse Administration, which maintained four veterinary supply depots.

Civilian Supply in Liberated and Occupied Areas

The brief references made previously to Chinese defense supplies comprised the only known instance in which the Army Veterinary Service was directly involved in the Medical Department's participation in the lend-lease supply of American medical materiel to foreign countries. This supply was undertaken by the United States in 1941 to provide aid to those foreign countries and their armies whose defense was considered as essential to its own defense (*3*, *4*). There was also another program for supplying civilians, but this was limited to newly liberated and occupied areas. While the latter supply was conceived as being outside the sphere of military operations and more properly the concern of nonmilitary agencies of the U.S. Government, there was reason to believe that temporary relief should be afforded to civilian populations in liberated and occupied areas if for no other reason than that disease and civilian unrest, as might hamper military operations, should be kept to a minimum. It was to be a short-term program, operated by the Army only during the period of military operations, and was to be "phased-out" as postwar rehabilitation programs would come into existence. Planning for direct civilian supply by the Army during the period of liberation and initial occupation was undertaken in 1943, or after experiences in North Africa had shown that civilian agencies (including the Foreign Economic Administration and the Office of Foreign Relief and Rehabilitation Operations, U.S. Department of State) were powerless to act until the areas were militarily secured. Veterinary materiel was included in this civilian supply specifically to protect civilians and U.S. troops from indigenous animal diseases and to conserve the food and transport animal populations in these areas.

Planning for the civilian supply of Medical Department materiel was undertaken in the Surgeon General's Office by a specially created board of officers, in mid-1943. Their recommendations were channeled through Headquarters, Army Service Forces, and thence to the Combined (United States-British) Chiefs of Staff, located in Washington, D.C., which had established a Supply Subcommittee within its Combined Civil Affairs Committee.

Actually, the original planning in the Surgeon General's Office overlooked veterinary materiel requirements of liberated and occupied countries, but this situation was corrected after December 1943 when the Subcommittee asked if there were studied requirements for veterinary materiel in this civilian supply. If not, the Army was requested to support the recommendations which had been made by U.S. State Department agencies who were to follow the Army supply with their own long-range, postwar programs for veterinary civilian supply in liberated and occupied countries. A veterinary officer was named at once on the Surgeon General's Civil Affairs Division Board and then to a newly formed Working Party on Veterinary Supplies for Liberated Areas, which operated within the jurisdiction of the Combined Chiefs of Staff, in Washington, D.C. (*5*).

The Working Party on Veterinary Supplies for Liberated Areas was made up of a United States component and a British component—the latter obtaining its views from London, England. The United States component, including Veterinary Corps representation from the Surgeon General's Office, formulated and, on 15 March 1944, reported a plan for civilian supply (*6*), and the British component's plan became available during April 1944. The British component's plan seemingly was one which was developed by United States and the British Army veterinary officers in England (*7*, *8*, *9*).[1] Obviously, the two plans were not alike, but their differences were readily reconciled in a moderate revision of the U.S. plan which soon found acceptance with the Supply Committee, Combined Civil Affairs Committee of the Combined Chiefs of Staff. The Army's veterinary civilian supply was based on the procurement and distribution of four small unit assemblies of Medical Department materiel as follows:

	Number of items
CAD Basic Veterinary Unit: For the care and treatment of 20 percent of 25,000 animals for 3 months, in occupied areas during the period of military occupation	43
CAD Veterinary Surgical Unit: For the care and treatment of each 10 percent of 100,000 animals for 6 months	40
CAD Veterinary Laboratory Unit: For the establishment, or the rehabilitation, of simple food analytical and animal disease-diagnostic laboratories	88
CAD Biologic Reserve: For controlling enzootics, using on 20 percent of 25,000 animals:	
Central Reserve	6
On need-be basis (for 6-month period)	12

[1] In England, a special Allied Post War Requirements Bureau was set up during the fall of 1944 to include representatives from various countries and one Veterinary Corps officer. Certain recommendations regarding veterinary supply were subsequently reviewed jointly by the British Royal Army Veterinary Corps and the U.S. Army Veterinary Service of the European theater. The latter's review eventually came into the hands of the Working Committee on Veterinary Supplies for Liberated Areas.

As of 9 June 1944, supply planning within the Combined Chiefs of Staff projected requirements for 3,496 basic, 224 surgical, and 77 laboratory units for distribution among 17 European countries during the initial 6 months of their liberation or military occupation; these quantities were increased later. Responsibility for their procurement was divided between the United States and the United Kingdom—the latter only had one-third of the total but was responsible for the supply of most of the biologicals. At this time, however, the fighting on the European Continent had begun so that the Allied (United States and British) forces resorted to the plan which had been developed in England until the basic, surgical, and laboratory units that were approved could be assembled and made available. Actually, the Allied forces found their civilian supplies being used at an earlier date and at a much more rapid rate than anticipated so that requisitioning by spot demand early became a commonplace procedure to bring veterinary civilian supplies into European countries. However, while spot demand requisitioning seemed to have initially brought the more urgently needed supplies into France, the civilian supplies became more readily available when the Allied armies liberated the other countries in Northwest Europe.

A civilian supply program for the Mediterranean theater, particularly Italy, likewise was developed by the Working Party on Veterinary Supplies for Liberated Areas. However, what was being accomplished was not fully known to that theater because, in June 1944, the latter submitted to the Combined Civil Affairs Committee in Washington, D.C., a list of veterinary materiel which it thought, supported by its study of the needs of Italian veterinarians during the previous 6 months, should be supplied to foreign countries having an agricultural economy comparable to that of Italy (*10*, *11*). Obviously, the newly submitted list for veterinary civilian supply was critically at variance with the several small unit assemblies which had been developed in Washington, D.C., because the latter presumably were based on probable needs where American methods of disease control and treatment were employed. The Surgeon General's Office advised the Combined Chiefs of Staff's Civil Affairs Committee that their four small unit assemblies should not be changed (*12*), and this recommendation was eventually agreed to by the Public Health Subcommission, Allied Control Commission, in Italy. Then, as these supplies became available, the Public Health Subcommission, Allied Control Commission, transferred them to the Chief of the Italian Veterinary Service under the Ministry of Interior, who distributed them through the various provincial governments. Where these imported civilian supplies together with those available from the local Italian resources were inadequate, the more urgent requirements were partially met by requisitioning on the Army medical supply system within the theater or by requisitioning special items direct from the United States.

Greece and Austria also were provided with veterinary materiel in this

Army Medical Department's civilian supply program. However, their requisitions, particularly those from Greece, were necessarily reduced because some of the equipment and supplies so demanded were destined for use in long-term rehabilitation programs in these countries and thus were outside of the limitations which governed the Army's civilian supply program. In the Pacific and Far East areas, the United States was alone in the military supplying of civilians during the period of military liberation and initial occupation. These areas specifically included the Philippine Islands, Formosa, parts of China, the Netherlands East Indies, Japan, and Korea. However, the program was not fully developed for any particular area pursuant to original plans when Japan unexpectedly surrendered. Then, as happened in Europe, the Army responsibility in liberated areas was relinquished as soon as possible to the liberated governments who continued to obtain their needed supplies through civilian international agencies. Of course, in military occupied areas, the Army continued its civilian supply program long after the end of active hostilities.

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CHAPTER VII

Functional Organization in the Zone of Interior

WAR DEPARTMENT ORGANIZATION

Chapters III to VI have dealt with the Army Veterinary Service in general terms as to its central administration, its personnel, and its training and supply. Probably, a more interesting subject is the functional organization of the Army Veterinary Service in the Zone of Interior or the discussion of the deployment and utilization of veterinary personnel and their activities in the United States during World War II. Unfortunately, functional organization per se is difficult to understand and proves even more difficult to describe, particularly since veterinary functional organization was one of integration into the combat arms and technical services. Essentially, it followed the command structure of the Army as a whole and, as the latter changed, so did veterinary functional organization change. Sometimes, the military command structure created hardships on the orderly operations of a military veterinary service, but this could be expected, and though, seemingly or theoretically, threatening a complete breakdown for adequate and proper professional activities, these hardships were minimized by willful cooperation and recourse to technical channels of communication between the veterinary personnel who came under control of the various commands. The latter always had as their objective the gaining of command support in the conduct of meat and dairy hygiene and veterinary animal services. These two activities, together with veterinary laboratory service, characterized the organizational functions of the Army Veterinary Service in World War II.

Before discussing the veterinary organization, one must be moderately acquainted with the organization of the War Department which, physically located in the United States, was superimposed over the Army both in the Zone of Interior and overseas. At the onset of World War II, the War Department, as contrasted with the Army, included the civilian Secretary of War and the military Chief of Staff, who controlled the War Department General Staff and the War Department Special Staff. The latter comprised the chiefs of combat arms, certain administrative bureaus such as were headed by The Adjutant General, Judge Advocate General, Inspector General, and Chief of Finance, and the chiefs of supply and technical services. The service chiefs were the Chief of Chemical Warfare Service, Chief of Engineers, The Surgeon General, Chief of Ordnance, The Quartermaster General, and Chief Signal Officer. There was no Chief of Transportation until mid-1942. The Army organization comprised the four field armies which commanded most of the ground tactical forces in the United States, and the nine corps area commands administered the military camps and

stations and supported the ground force units. There were certain other field installations, however, such as general depots and ports, which came under the direct control of the War Department. Finally, there were two major commands which had come into existence during the pre-Pearl Harbor emergency periods: The Army Air Forces and the General Headquarters for the field forces. The latter, created in July 1940, was responsible for the tactical training of ground troops and the planning for the defense of the United States by four territorial defense commands. By this time, the Army Air Forces was started on its way toward a degree of autonomy.

There were few components of the overall military organization in the Zone of Interior below the level of the General Staff that did not have assigned veterinary personnel. The larger share of this personnel was, at the beginning of the war period, located at various camps and stations under the jurisdiction of corps area commands, in the depots, hospitals, schools, and laboratories controlled by The Quartermaster General and The Surgeon General, and at the general depots, ports, or other exempted stations which reported directly to the War Department. Gradually, as the Nation's first peacetime draft law came into operation and military Reserve forces were ordered into active duty, more Veterinary Corps personnel were assigned to the ground combat units and to the Army Air Forces fields and bases.

Effective on 9 March 1942, about 3 months after the start of active hostilities, the War Department was reorganized, and the operational controls over military activities in the Zone of Interior were redivided among three, newly created, separate commands: The Army Air Forces, the Army Ground Forces, and the Services of Supply—the last being renamed Army Service Forces in May 1943 (*1*). The veterinary organization of these three commands is described later, but it is of immediate importance to observe that the commanding general of each of these commands reported to the Chief of Staff of the Army. The Surgeon General, in turn, was subordinated to the Commanding General, Army Service Forces.

Of the three newly created War Department commands in the Zone of Interior, Army Service Forces predominates in the discussion of the Army Veterinary Service, because the Army Service Forces command included The Surgeon General of the Army and the Medical Department of which the Army Veterinary Service was a component element. Also, it included the Quartermaster Corps which supplied the Army and other Armed Forces with foods and animals, the Transportation Corps which transported the Army and moved its supplies, and the service commands (once called corps areas) which controlled or administered nearly all of the Army camps and stations in the Zone of Interior. In contrast to the alignment of the larger share of the Army Veterinary Service with Army Service Forces, a proportionally smaller number of veterinary personnel on duty at airfields and bases were transferred to Army Air Forces, and Army Ground Forces came into control

over those personnel who were assigned to Infantry, Cavalry, Field Artillery, and other ground combat service organizations and units.

RELATIONSHIP WITHIN THE ARMY SERVICE FORCES

The Army Services Forces command included its headquarters organization, certain operational elements which were the technical or the administrative and supply services, and the service commands (formerly corps areas) which were the major elements of its field organization. At its head was the Commanding General, Army Service Forces. The several functional staff divisions of Headquarters, Army Service Forces, were not unlike the policy-making General Staff divisions of the War Department and also comprised the groups of certain War Department administrative bureaus including the offices of The Adjutant General, the Judge Advocate General, the Chief of Finance, the Provost Marshal General, and the Chief of Chaplains. No veterinary personnel were assigned to Headquarters, Army Service Forces. The technical services and supply departments of the Army were in the next echelon of the command. One such agency was the Medical Department which was headed by The Surgeon General; the latter's office included the Veterinary Division whose divisional chief—a Veterinary Corps officer—was the chief of the Army Veterinary Service. The technical services included also the Chemical Warfare Service, Corps of Engineers, Ordnance Department, Quartermaster Corps, Signal Corps, and Transportation Corps. Each of these, as did the Medical Department, controlled a number of field installations in the Zone of Interior, also referred to as class IV installations, where veterinary personnel were on duty. These personnel comprised the remount depot veterinarians, remount purchasing board and area headquarters veterinarians, Army dog center veterinarians, depot veterinarians, market center veterinarians, port veterinarians, veterinary instructional staffs in schools and training centers, and those engaged in research and development activities. The Army Service Forces field organization or its service commands, from a veterinary standpoint, comprised the service command veterinarians, medical laboratory veterinarians, and the many camp, station, and area veterinarians. Installations under the control of service commands were designated as class I installations, and the veterinary services thereat, as class I activities.

Thus, within Army Service Forces, veterinary personnel in the Zone of Interior were divided among two command groups—those belonging to the several technical services and the others under jurisdiction of the service commands. This division or scattering of veterinary personnel came with the Army Service Forces emphasis on decentralizing command authority over supply matters (that is, procurement, transportation, storage, and distribution) among the technical and supply services and that of "housekeeping" to the service commands. Professional and specialist activities were accorded secondary roles in the Army Service Forces so that training, labora-

tory services, hospitalization functions and other medical activities, including the veterinary services, were grossly and arbitrarily divided between the Army's technical services and its "housekeepers." This division complicated and made difficult an overall technical supervision of veterinary activities by The Surgeon General, such as in a service command, in a Quartermaster Corps depot, or in a Transportation Corps port. However, by means of informal arrangements and personal communications on professional matters, necessarily made outside of command channels, the various groups of veterinary personnel were coordinated in their activities to become equally important in accomplishing the major missions of the Army Veterinary Service in the Zone of Interior.

ROLE OF PERSONNEL ASSIGNED TO THE TECHNICAL SERVICES

The Army Veterinary Service with the supply and technical departments, bureaus, or corps of the Army Service Forces necessitated the distribution of veterinary personnel and their utilization at various field (or class IV) installations which were controlled by the respective chiefs of services. At one time, in 1943, there were approximately 600 such installations in the Zone of Interior, but no more than one-fourth of this number were provided with organically assigned veterinary personnel, including some that were provided part-time or attending veterinary services by personnel under service command jurisdiction. Essentially, these personnel assignments were regulated by The Surgeon General in the same general manner that all Medical Department officer and enlisted personnel assignments were controlled, and were made in cooperation with the chiefs of technical services who required Army Veterinary Service personnel. There was no instance on record that The Surgeon General was, or could be, criticized one way or the other in his actions on withholding or making available veterinary personnel to the various technical services; in fact, the Quartermaster Corps which required relatively large numbers of them, on one specific occasion, augmented the arguments of The Surgeon General in order to obtain veterinarians for military service in numbers greater than the number that Headquarters, Army Service Forces, was willing to grant. Following their assignments, the veterinary personnel came under the immediate control of the respective installation commander and the latter's chief of the technical service concerned; for example, under the depot commander and The Quartermaster General or under the port commander and Chief of Transportation. However, a varying degree of professional or advisory assistance on technical matters for conducting the veterinary service in the class IV installations was provided by The Surgeon General to these assigned personnel. With one exception, the personnel so assigned to the various technical service installations retained their identity with the Veterinary Corps, Medical Department—the exception being a few officers who were assigned to duty with the Chemical Warfare Service. At these class IV installations, the

commander and his chief of technical service directed the performance of specialized veterinary services within the defined overall mission and functions of the concerned technical service organization. Of course, this direction was self-limiting to the degree that the veterinary services rendered were within the scope of Medical Department activities and were coordinated and uniform in nature and that the veterinary personnel were properly and economically assigned and utilized; all were matters of immediate and continuing importance to The Surgeon General.

Chemical Warfare Service

The Chemical Warfare Service (later Chemical Corps) was one of the Army Service Forces technical services having assigned veterinary personnel. Its veterinary service was a major Medical Department activity at Edgewood Arsenal, Md., and other field installations which were controlled by the Chemical Warfare Service. The veterinary activities there were diversified, ranging from the operation of laboratory animal colonies to scientific research into the effects of chemical warfare gases on animals and the development of procedures and protective equipment regarding animals and troop food supplies which may be exposed to any chemical warfare attack by an enemy. Also, pertinent training publications were promulgated for use throughout the Army, and instructional services were rendered. Altogether, these veterinary activities were completely defensive in nature as regards the mission and functions which were defined for the Chemical Warfare Service; of course, activities pertaining to the actual care and handling of animal casualties and contaminated subsistence were the responsibility of the Medical Department.

These activities had an inauspicious start when, just before World War II, one Veterinary Corps officer was assigned to the Medical Research Division at Edgewood Arsenal; as of September 1945, the number of veterinary officers there was eight. This medical facility was reorganized several times during the war period, so that for some time the veterinary personnel were assigned to the Medical Department Research Laboratory. In 1943, however, the laboratory was brought under jurisdiction of the Chemical Warfare Center, Edgewood Arsenal, and thus was controlled by the Chief of Chemical Warfare Service. In September 1945, the Medical Research Laboratory was discontinued, but its activities at Edgewood Arsenal were continued as the new field organization, or Research Branch of the Medical Division which was established in the office of the Chief of Chemical Warfare Service. Within this reorganization, veterinary officers comprised the field Veterinary and Animal Section and others were assigned to the Flame Attack and the Food Chemistry Sections. At various times, these personnel were detailed to duty in the Chemical Warfare Service mobile or field testing unit at Bushnell, Fla., and to the San José Island project, Panama Canal Department. Another two officers were permanently assigned to the Medical Research

Laboratory, Dugway Proving Ground, Tooele, Utah. Matters relating to the veterinary medical aspects of chemical warfare and progress reports on research and development were communicated directly, or through the office of the Chief of Chemical Warfare Service, to the Veterinary Division, Surgeon General's Office.

At Edgewood Arsenal, one of several specific activities of Veterinary Corps officers was their utilization as part-time instructors in the training courses, including the Medical Department Officers' Course, that were held in the Chemical Warfare School. Another activity and one that was conducted in other installations was the procurement of experimental animals and the management of laboratory animal colonies which were needed in chemical warfare research; the veterinary officers often evaluated the toxicological and biological reactions occurring in tested animals. In addition, these personnel entered into research and development projects on the effects, hazards, protection, and treatment or decontamination of military animals and food supplies exposed to chemical warfare agents. Fundamental principles of veterinary medical or defensive aspects of chemical warfare were promulgated in Army training manuals (*2*, *3*, *4*), and protective equipment was developed for military animals; namely, the Horse Gas Masks, M4 and M5; the Dog Gas Masks, MG–12–8; and the Protective Pigeon Bag. The masks became items of standard issue by the Chemical Warfare Service. Recommendations also were made with regard to the treatment of animal casualties which led to the development at the Medical Department Equipment Laboratory, Carlisle Barracks, Pa., of the new Veterinary Gas Casualty Chest Set. In regard to the Army's food supplies, studies were made on the protective efficacy of outside packing and packaging materials, particularly those which were used on field rations. Actually, this development concerned the Chemical Warfare and Army Veterinary Services as much as it did the Quartermaster Corps—the latter being primarily responsible for the Armed Forces food packing and packaging. Later, a kit was developed for Medical Department issue to military units that could be utilized to detect the gross contamination of foods by common chemical warfare agents; this was officially referred to as the Food Testing Kit (fig. 6). In 1945, the Army Veterinary Service with the Chemical Warfare Service initiated a new project for studying chemical agents which might be used beneficially as insect control or insecticidal agents.

Completely separate from the preceding utilization of Veterinary Corps personnel, the Chemical Warfare Service had approximately 20 others in its Special Projects Division who were concerned with the veterinary medical aspects of biological warfare. Details regarding their activities are generally unavailable except perhaps the notation that the Chemical Warfare Service sometimes had no responsibility other than that of administering the money. Thus, in this way, the Chemical Warfare Service became involved in the joint United States-Canadian research project that was con-

ducted on the viral agent of rinderpest disease of cattle, leading to the development of a new avianized vaccine that could be used to effectively protect a country's cattle population from a panzootic of that disease. This project was conducted at the War Disease Control Station, Grosse Isle, Canada, and was staffed by six Veterinary Corps officers and several research scientists from the Army Medical Corps, the Navy, and the Canadian Army. Other Veterinary Corps officers were engaged in antibiological warfare research at an installation in Maryland.

Medical Department

The Medical Department must also be described as one of the Army Service Forces technical services having assigned veterinary personnel, exclusive to those comprising the Veterinary Division in the Surgeon General's Office. Just as Edgewood Arsenal came under control of the Chief of Chemical Warfare Service, there were a number of Medical Department installations and activities commanded by The Surgeon General. The more obvious of such were the Army Medical Museum (later Army Institute of Pathology), the Army Medical Center—both in Washington, D.C.—and the Medical Field Service School, Carlisle Barracks, Pa. Other class IV installations under The Surgeon General were the medical depots and medical sections of general depots, medical research facilities including the Veterinary Research Laboratory at Front Royal, Va., and the instructional staffs of replacement training centers such as at Camp Grant, Ill., and Fort Lewis, Wash., and the enlisted technicians school at William Beaumont General Hospital, El Paso, Tex. The named general hospitals, including William Beaumont General Hospital, were not commanded by The Surgeon General after August 1942 when Headquarters, Army Service Forces, transferred them to service command control; only training activities within them were regulated by The Surgeon General. Also, the regional and convalescent hospitals or hospital centers (except that of Walter Reed), which came into existence later, were not controlled by The Surgeon General. These were controlled by the commanding general of the service command in which they were located, but, in the spring of 1946, they were transferred to Medical Department control. The same situation pertained to the replacement training centers for veterinary enlisted personnel; that is, the centers' instructional staffs and training doctrines were regulated as class IV activities by The Surgeon General, but all other veterinary services at Camp Grant and Fort Lewis were regulated by the concerned service command as at any other of its class I installations.

The installations just mentioned, or any others that were commanded by a chief of technical service, were commonly referred to as class IV installations. The same classification procedure designated activities and facilities coming under service command control as class I installations; those of the Army Ground Forces were class II installations, and the

Army Air Forces controlled its own (class III) installations. Actually, there was a continual interchange of the class designations of installations so that, for example, Carlisle Barracks which housed the Medical Field Service School was, for a short period of time (August 1942 to May 1943), controlled not by The Surgeon General but by the Third Service Command. The situation pertaining to replacement training centers and the school training staffs in named hospitals was even more confusing because the installations housing them were designated as class I or under the control of the service commands; but, as previously mentioned, The Surgeon General prescribed the training doctrine and assigned the instructional staffs in these installations.

Army Medical Center.—The functional organization of the Army Veterinary Service at the Army Medical Center, Washington, D.C., was largely that of the Army Veterinary School. The Army Veterinary School was a component of the Medical Department Professional Service Schools organization of the center and was headed by a Veterinary Corps officer as school director. Its mission, pursuant to Army Regulations No. 350–1000, were (1) to provide instructional service in the training of Medical Department personnel, (2) to conduct a veterinary laboratory service and research investigations on animal diseases and Army foods, and (3) to produce, develop, and distribute certain veterinary biologicals. In addition, the Army Veterinary School rendered station meat and dairy hygiene and veterinary animal services for the medical center which included the Walter Reed General Hospital. The exception to the organization of all veterinary activities at the Army Medical Center under the Army Veterinary School occurred with the establishment, in April 1941, of the Medical Department Enlisted Technicians School under the administrative control of the Professional Service Schools organization. A special veterinary instructional staff was assigned but was discontinued in March 1945 when all veterinary activities of the installation again came under control of the director of the Army Veterinary School.

The Army Veterinary School laboratory was essentially the central veterinary laboratory for the Army and, until World War II, comprised the only Medical Department laboratory facility available for routine clinicodiagnostic and food analytical needs of the Army Veterinary Service in the Zone of Interior. Then, in 1941, as new corps area (or service command) medical laboratories were established, each with a veterinary section, the laboratory of the Army Veterinary School restricted its routine services to satisfying the veterinary laboratory needs of the Third Service Command and the Military District of Washington. In its activities as the Army's central veterinary laboratory, the Army Veterinary School trained nearly all veterinary personnel who were assigned to the Medical Department laboratory system, provided advisory services to the Surgeon General's Office, evaluated and standardized test procedures and equipment, and acted as a

control or appeal laboratory regarding controversial matters arising between other laboratories. Its research investigations and activities included the perfection and production of equine encephalomyelitis vaccine; the application of improved biologic preparation to the production of typhus vaccine; the production of large quantities of Japanese B encephalitis vaccine used to immunize troops; the isolation and identification of the viruses of various types of equine encephalomyelitis infection in man and animals; the effects of freezing, storing, and thawing fresh milk; and the analyses and nutritional evaluation of the military ration. Many of these studies were conducted in collaboration with the laboratories of the Army Medical School.

Medical Field Service School.—The Army Veterinary Service with the Medical Field Service School, Carlisle Barracks, included the veterinary officers who were assigned to, and comprised, the school's Department of Veterinary Field Service. Prior to September 1942, the department was referred to as the Office of the Senior Veterinary Representative. Their activities were largely those of providing veterinary instructional services in the courses on medical field service that were conducted for Medical Department officers and in the officer candidate school. The Basic Course or the wartime Officers' Refresher Basic Course were attended by veterinary officers as well as by medical and dental officers. In addition to their instructional activities, the school's veterinary officers provided the station meat and dairy hygiene and veterinary animal services for Carlisle Barracks and represented the Veterinary Division, Surgeon General's Office, in the development of training doctrine and War Department manuals concerning veterinary medical field service. Also, these officers cooperated with the Medical Department Equipment Laboratory in studies on improving and developing Medical Department equipment and supplies which were used or needed by the Army Veterinary Service in the field.

Following the termination of the war, on 15 February 1946, the Medical Department school was discontinued at Carlisle Barracks and concurrently reestablished, with its Veterinary Department, at Brooke Army Medical Center, Fort Sam Houston, Tex. The equipment research activities relating to packing and chest assemblies were resumed at the Army-Navy Medical Purchasing Office, New York, N.Y., and those relating to veterinary food inspection equipment were assigned to the Meat and Dairy Hygiene School, Chicago, Ill.

Army Medical Museum.—The Army Medical Museum in Washington, D.C., redesignated in 1946 as the Army Institute of Pathology and then in 1949 as the Armed Forces Institute of Pathology, first gained the assignment of a Veterinary Corps officer on 13 October 1943. Actually, this facility had need for veterinary services long before this date because of the growth in the collection of animal specimens during the opening years of the war and the need to arrange, investigate, and study such pathological material. Several months later, on 23 March 1944, The Surgeon General

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FIGURE 10.—Maj. T. C. Jones, VC, Registrar, Registry of Veterinary Pathology, Army Institute of Pathology.

granted approval for the American Veterinary Medical Association to sponsor a veterinary subdivision or element of the American Registry of Pathology (*5, 6*). This subdivision, named the Registry of Veterinary Pathology (originally called the Registry of Comparative Pathology), was administered by the senior pathologist or chief of veterinary section, pathological department (fig. 10). As of the end of World War II, the Registry of Veterinary Pathology contained 3,600 accessions and was already providing clinicodiagnostic and consultation services in pathology to members of the American veterinary profession. It had also contributed to wartime research on animal disease of military importance such as equine influenza, equine periodic ophthalmia, and canine leptospirosis.

Veterinary Research Laboratory.—Another class IV installation was the Veterinary Research Laboratory, located at the Aleshire Quartermaster Remount Depot, Front Royal, Va. This laboratory originated with recommendations made on 6 August 1938, by the Chief of the Veterinary Division, Surgeon General's Office. Cooperative actions subsequently taken by the local quartermaster depot commander and depot veterinarian led to the de-

velopment of laboratory facilities suitable for the conduct of research investigations on diseases seriously affecting Army horses and mules. By 10 June 1939, the first Veterinary Corps officer and other personnel had arrived. There is no official date on its establishment, but, as of September 1944, the Veterinary Research Laboratory was being formally referred to as a field installation under the command control of The Surgeon General (7). At this time, concurrent with Army planning for closing the depot at an early date, the Surgeon General's Office, with the concurrence of the Remount Branch, Office of the Quartermaster General, sought and eventually gained (on 3 May 1945) approval from Headquarters, Army Service Forces, to relocate the laboratory in Nebraska at the Robinson Quartermaster Remount Depot. The Veterinary Research Laboratory was physically transferred to its new location in September 1945, where it continued in operation until it closed in July 1947. Actually, only the physical plant of the laboratory was closed because the Veterinary Research Laboratory was then transferred on paper in an inactive status to the Army Medical Center, and the existing research projects were referred to the Army Veterinary School at that center for further study.

During the tenure of its operations, the range of the activities of the Veterinary Research Laboratory paralleled that of any scientific research on diseases and injuries and consisted of investigations on the clinical and pathological changes and the improved means for diagnosis, prevention, and treatment of equine influenza, equine periodic ophthalmia, and equine infectious anemia.

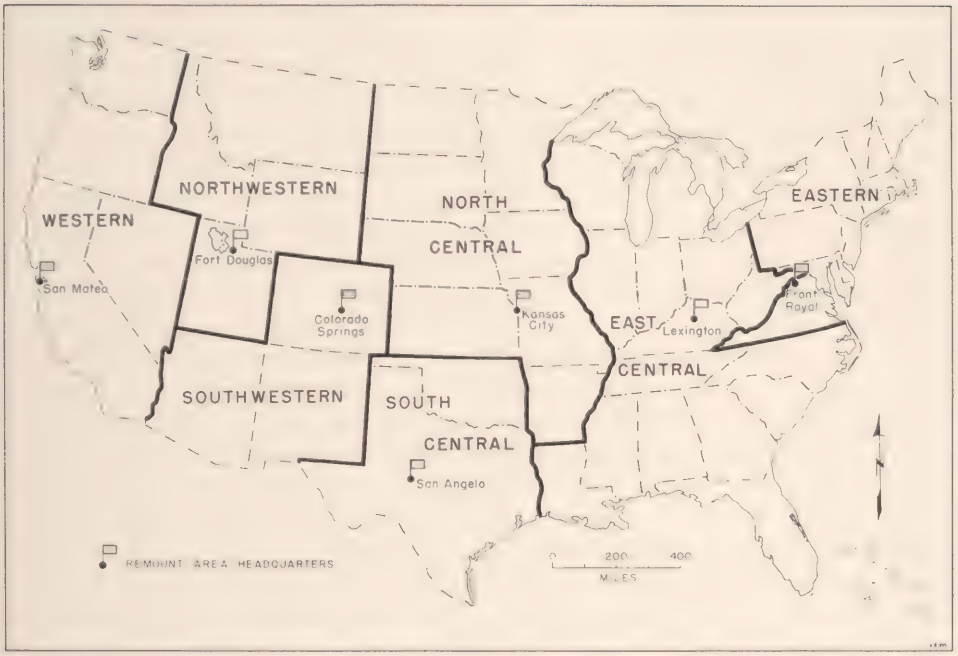
Quartermaster Corps

Within the Army Service Forces organization in the Zone of Interior, the Quartermaster Corps was the leading technical and supply service with regard to the number of veterinary personnel utilized at its installations. This personnel included animal purchasing board veterinarians, headquarters veterinarians of remount purchasing and breeding areas, remount depot veterinarians, veterinarians of Army dog reception and training centers, depot veterinarians of Quartermaster depots and sections of general (or Army Service Forces) depots, and to a degree, the Quartermaster market center veterinarians. These veterinarians, or veterinary officers, and the veterinary detachments which they commanded rendered professional and technical services in as many as 7 or more purchasing boards, 7 remount areas, 4 remount depots, 6 dog centers, 18 depots and depot sections, and 34 market centers. The first three were concerned with the Quartermaster supply of horses and mules; the next group of installations was involved in the supply of dogs to the Armed Forces; and the last two groups procured, stored, issued, and otherwise handled the nonperishable and perishable subsistence supply for the Army. All were class IV installations under the control of The Quartermaster General, and their veterinarians came under the jurisdiction of the concerned installation commander. At the installa-

tions, the senior veterinary officers supervised the conduct of routine station-type meat and dairy hygiene and veterinary animal services—these activities being the same as in any Army camp or airbase. However, their principal duties were of a specialized nature and were characteristic of the overall missions of the particular Quartermaster installations to which the veterinary officers were assigned.

Animal purchasing boards.—For the supply of horses and mules to the Army, the Quartermaster Corps established animal purchasing boards. These were mobile procurement agencies which went to the farms, horse production areas, and livestock markets located within or in a part of a specified geographic area conforming to the boundaries of one of the several designated remount areas in the United States. Actually, these boards were constituted or active only during the time that horses and mules were being procured in their given geographic areas, and their operations were regulated by the concerned headquarters' remount purchasing and breeding areas, within whose geographic boundaries they were operating. Sometimes, two or more animal purchasing boards were operational in a remount area, but usually the rate of animal procurement during World War II was so sporadic and relatively small, in contrast to the situation in World War I, that only one board was allowed to operate at a time in a remount area. In fact, most frequently, remount area headquarters personnel were placed on additional duty to the local animal purchasing board whenever any animals were to be procured. The numbers and kinds of animals purchased were regulated by The Quartermaster General who issued procurement directives to the personnel in headquarters' remount purchasing and breeding areas, who in turn controlled the concerned animal purchasing boards.

The Army Veterinary Service had the assigned mission to physically examine all animals prior to purchase, with a view to insuring the acquisition of only healthy, sound horses and mules, and to inspect and supervise the sanitary conditions at purchasing points and along the shipping routes to Army remount depots or other destinations in order to prevent the introduction or spread of communicable animal diseases (*8*, *9*). At the organization level of the animal purchasing board, this mission was the designated responsibility of the purchasing board veterinarian. Each purchasing board was required to have a Veterinary Corps officer in the composition of its membership, who came under the immediate jurisdiction of the officer in charge of the board. The purchasing board veterinarian determined the age (and sometimes the weight) and made a complete and systematic physical examination as to health, soundness, and physical condition of each horse or mule submitted to the board, followed by specific recommendation as to the acceptability of each animal. This recommendation was made subject to the result of the intradermic mallein test for glanders that was conducted on the animal at the purchase point, if sufficient period of time (48 hours) was available, or after the animal's arrival at destination. The animals which



MAP 1.—Quartermaster Remount Purchasing and Breeding Areas, Army Service Forces, May 1942.

were finally accepted for purchase were then identified descriptively, and temporarily or permanently marked with a Preston brand. In addition to these activities, the purchasing board veterinarian conducted sanitary inspections of purchasing points and of the methods and facilities which were being used in handling and shipping the animals and investigated the animal disease situation among civilian populations in the locality. Animals which, on physical examinations for Army procurement, showed signs or symptoms of serious communicable disease were reported to local civilian authorities for disposition; furthermore, areas which were experiencing enzootics of such diseases or were under animal quarantine imposed by States or the Federal Government were removed as points of animal procurement.

Headquarters, remount purchasing and breeding areas.—The remount areas, more descriptively named remount purchasing and breeding areas, were geographically defined areas of the United States, including its territories. Within each such area, all matters relating to horse and mule procurement and to the Army Horse Breeding Plan were coordinated and supervised by the pertinent area headquarters organization which, in turn, was controlled by The Quartermaster General. At the beginning of the war period, there were seven such areas (map 1). Subsequently, the number of remount areas was reduced to six and then, in 1947, to four.

Each remount area headquarters included the headquarters veterinarian who, under the direction of the immediate officer in charge, supervised all veterinary matters relating to animal procurement and the Army Horse Breeding Plan in the respective area (*10*). His special duties included the assignment, training, and supervision of veterinary personnel who were assigned to animal purchasing boards which operated in the area; the sanitary inspection of facilities and procedures commonly used throughout the area for assembling, handling, and transporting animals; and the veterinary survey, in cooperation with local, State, or Federal agencies, of the nature and extent of prevailing animal diseases and other conditions bearing on the potential military usefulness of animals in the remount area. Arrangements also were made for the care and treatment of those newly purchased animals which might become sick or injured before they were shipped from the purchase points or while en route to the remount depots. Also, the headquarters veterinarian provided professional services to the Government-owned stations which, under the Army Horse Breeding Plan, were farmed out in that area to selected civilian horse breeders, called stallion agents. These professional services included the examination of the stallions for condition, soundness, and sterility and the examinations of the civilian mares which were to be serviced by the stallions. Of course, professional advice and instruction were provided as to the proper care of the stallions, the mares, and their foals in order to further the object of the Army Horse Breeding Plan, which was to improve the quality of horses suitable for military use. Some few remount area headquarters had their own stables for handling the stallions between times of issue to the civilian agents; infrequently, these animals were so handled as to require their withdrawal from stallion agents.

Remount depots.—The third agency or installation organic to the Army horse and mule supply comprised the Quartermaster remount depots. These received the newly purchased animals (also called remounts or green animals) from the purchasing boards in the remount areas, conditioned or otherwise processed them, and then issued the animals to mounted organizations and installations. These depots also maintained small brood mare bands, assisted in the operation of the Army Horse Breeding Plan, and became the location of two Army dog reception and training centers. At the beginning of World War II, the number of remount depots operating in the Zone of Interior was three: Aleshire, at Front Royal, Va.; Reno, at Fort Reno, Okla.; and Robinson, at Fort Robinson, Nebr. Their capacities were expanded in the fall of 1940 to handle as many as 35,000 horses and mules at one time. In October 1943, the Kellogg Arabian Nursery, Pomona, Calif., was acquired by donation and was established as the fourth remount depot in the Zone of Interior; however, its activities were less expansive than those of the other three. Between July 1940 and June 1945, the depots processed over 100,000 animals (including 57,000 newly purchased remounts and 47,000 horses and mules which were returned by organizations and installations) and had issued more

than 65,000 animals, some being issued more than one time. As of December 1945, animals in the four depots totaled little more than 12,000.

Each remount depot was internally organized to include a veterinary section headed by the depot veterinarian who commanded the veterinary detachment and the station veterinary hospital. Typical of the functional organization of veterinary services in nearly all Quartermaster installations, the depot veterinarian also occupied the position of staff officer to the commanding officer of the depot. The veterinary section itself was divided into several subsections: Administration; medical supply; station meat and dairy hygiene and forage inspection; receipt, quarantine, and issue; breeding and nursery; and, of course, the veterinary hospital. The depot veterinarians also supervised veterinary officer replacement pools and veterinary activities of Army dog centers when they were operated at the remount depots. With regard to the remounts which were received or the animals returned from organizations, the depot veterinary activities included identification and branding, supervision of quarantine, diagnostic testing and immunization against serious animal diseases, dipping and internal medication against parasitic infestations, and the care and treatment of sick and injured animals. Special inspections were made at the time the animals were prepared for issue and shipped from the depot so that only those in good health and physical condition would arrive at destination. As required, depot veterinary personnel were detailed as attendants to the animals while en route.

The veterinary service with the depot brood mare bands was highly specialized in character because it involved, not only routine veterinary care and treatment activities, but also supervision over brood mares and stallions which were particularly subject to so-called breeding diseases and sterility problems, and the proper management of foals. New techniques and scientific improvement of horse production and control of animal diseases were under continuous study by the remount depot veterinarians.

Army dog reception and training centers.—Another type of Quartermaster installation concerned with the processing of animals was the Army dog (or the officially named war dog) reception and training center. This was an innovation of World War II when dogs were, for the first time in American military history, included in the definition of military animals and thus were provided with the same degree of veterinary care and treatment as Army horses and mules. Beginning in March 1942, the Army began to accept donations of trained war dogs, but, a few months later, the Army undertook the training of dogs with arrangements being made with a newly organized civilian agency to recruit dogs (lent by civilian owners) and to send them to Army dog reception and training centers. Later, in March 1945, the Army also began purchasing its own war dogs. The newly acquired dogs were received, conditioned or otherwise processed, and issued to military organizations by Army dog reception and training centers; what was accomplished there paralleled the mission and activities of remount depots with

newly purchased horses and mules. Five dog centers were established in late 1942, in the remount depots at Fort Robinson and Front Royal, at Camp Rimini, Mont., at Cat Island (near Gulfport), Miss., and at San Carlos, Calif. Only the installation at Fort Robinson was continued in operation after November 1944; the others were closed a few months earlier. In 1943, a sixth Army dog center was established and operated at the U.S. Department of Agriculture's Agricultural Research Center, Beltsville, Md., but its activities were limited largely to a joint research project on Army dog rations. The Camp Rimini installation was designated primarily as the center for processing sled and pack dogs. Approximately 18,000 dogs were received at the centers from the civilian agency, and another 1,380 were purchased by the Army between March and August 1945; of this number, more than 10,000 dogs were issued, including those shipped overseas.

Each dog center had its own veterinary detachment, whose commanding officer was responsible for the veterinary care and treatment of the dogs which were received, processed, and issued by that installation. The veterinary activities in the Army dog centers included physically examining the dogs at time of arrival; identifying and branding them; supervising their quarantine, feeding, kenneling, and handling; diagnostic testing for and immunizing against communicable diseases; controlling parasitic infestations; treating and hospitalizing sick and wounded dogs; and inspecting the dogs for health and physical condition at the time of issue or shipment from the center. The major difference between these activities and the veterinary service with horses and mules in remount depots was that the dogs received from the civilian procurement agency were frequently not examined for health and physical condition until after their arrival at the dog centers. Thus, many animals were necessarily hospitalized at the centers or were destroyed, with owners' consent, if the initial examinations showed them to be seriously sick, injured, or infected with a communicable disease; unfortunately, a relatively large percentage of these animals were disqualified by other factors, such as temperament, but even so, they could not be returned to their owners while sick or known to be infected with serious disease. This situation was strikingly exemplified in 1942 when one recruit dog developed signs of rabies infection after its arrival at the Fort Robinson center. Of course, when the dogs were procured by purchase, a Veterinary Corps officer usually made a complete physical examination of the dogs before acceptance and prior to their shipment to an Army dog center. During 1942–43, a contractor in the First Service Command who was supplying trained sled dogs was provided attending veterinary services after suffering serious losses on account of insanitary conditions and after an epizootic of canine distemper in his kennels threatened to curtail the Army supply.

Quartermaster depots and sections of Army Service Forces depots.—Although the Army Veterinary Service at the several types of Quartermaster Corps installations was concerned with animal care and treatment, there were

two other types of installations which utilized an even greater number of personnel as veterinary food inspectors: namely, the Quartermaster depots and sections of general (or Army Service Forces) depots and the Quartermaster market centers. These other installations procured, received, stored, and distributed meat and dairy products for the Army in the Zone of Interior and for shipment overseas; the depots handled nonperishable subsistence, and the market centers handled the perishable subsistence.

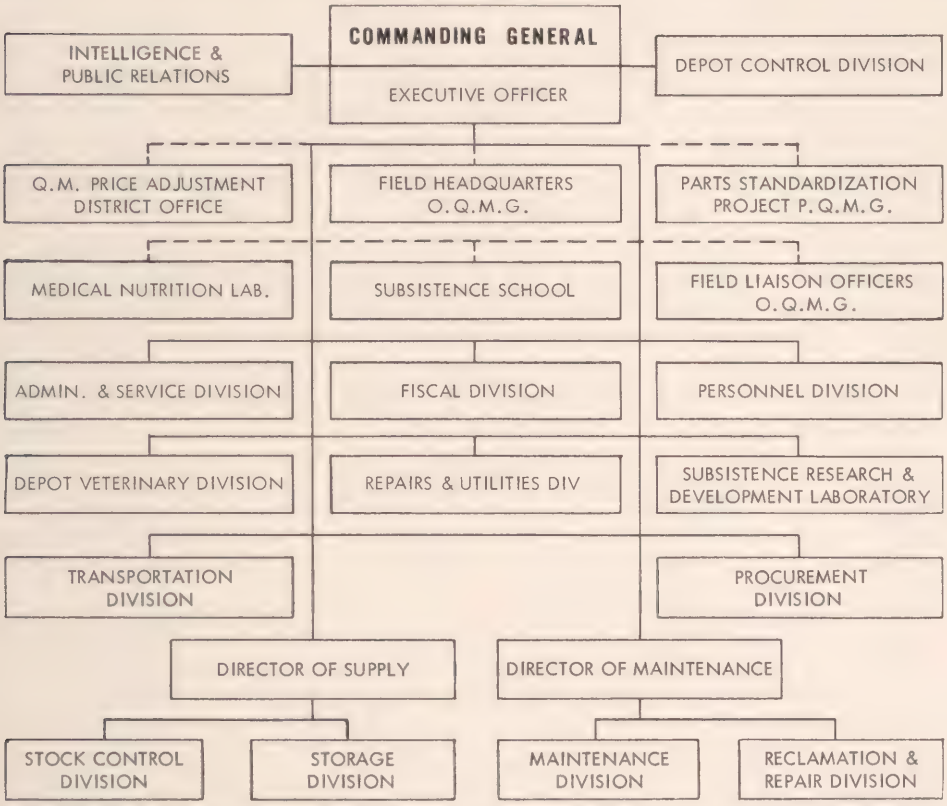
At the beginning of the war, Veterinary Corps personnel were on duty at the five active subsistence storage and distribution depots in the United States: Chicago and Seattle Quartermaster Depots, San Antonio General Depot, and the depots with the ports of embarkation at New York and San Francisco. During the prewar emergency period, these depots were expanded, and new general and Quartermaster depots were constructed so that the Quartermaster depot system of Army food supply in the Zone of Interior eventually totaled 18 installations, each having its own veterinary detachment. These included the Atlanta Army Service Forces Depot in Georgia, Boston Quartermaster Depot in Massachusetts, California Quartermaster Depot (at Oakland), Charlotte Quartermaster Depot in North Carolina, Chicago Quartermaster Depot in Illinois, Columbus Army Service Forces Depot in Ohio, Jersey City Quartermaster Depot in New Jersey, Kansas City Quartermaster Depot in Missouri, Memphis Army Service Forces Depot in Tennessee, Mira Loma Quartermaster Depot in California, New Cumberland Army Service Forces Depot in Pennsylvania, Richmond Army Service Forces Depot in Virginia, San Antonio Army Service Forces Depot in Texas (at Fort Sam Houston), Savannah Army Service Forces Depot in Georgia, Schenectady Army Service Forces Depot in New York, Seattle Army Service Forces Depot in Washington, Utah Army Service Forces Depot (at Ogden), and Fort Worth Quartermaster Depot in Texas. These Army Service Forces depots were called general supply depots before Headquarters, Army Service Forces, had changed their names, and each handled not only nonperishable subsistence but also other Quartermaster supplies and the supplies of other technical services for the Army. Of course, there were other depots, but some depots were so little concerned with the Army food supply that they did not warrant the assignment of veterinary personnel, although all were provided station-type veterinary services, usually on an attending basis. Thus, mention by name only is made of the Belle Mead Army Service Forces Depot in New Jersey, Jeffersonville Quartermaster Depot in Indiana, Philadelphia Quartermaster Depot in Pennsylvania, New Orleans General Depot in Louisiana, New York General Depot in New York, and the Washington Quartermaster Depot in the District of Columbia.

The depots just mentioned were class IV installations under the control of The Quartermaster General, except for the early period of the war when the general depots were regulated by the War Department General Staff and

then, for a brief period of time, by Headquarters, Army Service Forces, which had created a General Depot Service to supervise them. The latter control was discontinued in July 1942 when the responsibility for general depot administration was transferred to The Quartermaster General, who was already operating his own Quartermaster depots. At each of the 18 depots having assigned veterinary personnel, there was the designated depot veterinarian who was responsible to the immediate depot commander for the conduct of the veterinary activities at that depot. These activities were the performance of routine station-type meat and dairy hygiene and veterinary animal services and the inspection of the nonperishable meat and dairy products that were received, stored, distributed, or otherwise handled by the depot. Also, the depot veterinary detachments inspected foods, both perishable and nonperishable, during their procurement, but this activity became so complicated with the veterinary food inspection activities of service commands as to warrant its discussion in later paragraphs.

The Quartermaster depot veterinary detachments had varied beginnings. Two of them, the Chicago and San Antonio depots, actually existed before the prewar emergency periods; several others originated from the division of existing combination depot-port veterinary organizations, and then there were a few which at one time had veterinary personnel detailed to them on an attending basis by the corps area or service command in which the depots were located. Combination depot-port detachments were the predecessors of separate depot veterinary detachments which were organized at the Boston (in the spring of 1942), the California or the former San Francisco (in September 1942), and the Seattle (in May 1942) depots. The combination depot-port detachments in New Orleans and New York, however, became predominantly port organizations as the original depots in these cities were subordinated or disappeared. The Columbus (before September 1942), Savannah (between December 1941 and October 1942), and New Cumberland (between September 1941 and April 1945) depots as well as that at Boston (prior to January 1942) were originally dependent on the Fifth, Fourth, Third, and First Service Commands, respectively, for their veterinary services, but eventually these depots gained their own assigned veterinary personnel. On the other hand, until December 1940, the Chicago depot veterinarian was detailed additional duty as Sixth Corps Area veterinarian, and the veterinary detachment at Schenectady depot did not formally originate until January 1942 when the civilian veterinarian, who was employed at that installation in connection with the Civilian Conservation Corps program, was ordered into active military service as a Reserve Corps officer. Finally, there were the two subdepots or branch depots—Mira Loma and Fort Worth—where the originally assigned veterinary personnel from the parent California and San Antonio depot detachments became separate veterinary detachments, in August and May 1942, respectively, when the subdepots were reorganized as full depots. The beginning dates of veterinary detachments in other

CHART 1.—*Functional organization of the Chicago Quartermaster Depot, Chicago, Ill., 17 August 1945*



depots were as follows: Atlanta, March 1941; Charlotte, December 1941; Jersey City, July 1941; Kansas City, December 1940; Memphis, May 1942; Richmond, July 1942; and Utah, May 1942.

Within the operating organization of the various depots, the depot veterinarian frequently was placed at the level of chief of a division and as a staff officer reporting directly to the depot commander (chart 1). In less than half of the number of installations, the depot veterinarian organized his operations as a branch under the jurisdiction of the chief of the depot's administrative division. In a few other instances, the veterinary service organization was placed under the supervision of the depot's procurement division of the storage division, but this arrangement, although commonly observed in many depots during the early part of the war period, was generally unsatisfactory as obligating the inspector to the chief of a division for which the inspections were being conducted and as restricting the performance of the overall mission of the depot veterinary detachment. This organization within the depots completely separated depot veterinarians from super-

vision by medical supply officers in Army Service Forces depots and from the depot surgeons or medical sections except in regard to the sanitary inspections of local food supplies and station veterinary service with the few animals which were maintained there.

The internal organization of the veterinary branch or division likewise varied among the depots and was usually developed by the depot veterinarian in accordance with the local situation. Thus, the office of the depot veterinarian was recognized as the administrative section and veterinary detachment headquarters; the depot section performed the station service and inspected the depot's receipts, storage, and distributions of nonperishable foods, and sometimes there was a laboratory section and a field inspection section. The field inspection section usually had one or more suboffices in the city where the depot was located; performed inspections in the commercial food establishments, storage warehouses, and shipping points that were involved in the Army food supply program; and also provided the Veterinary Corps officer in attendance at the Quartermaster market center, if one was located in that city. Many depot veterinary field inspection sections were further subdivided, as required, into two or more subsections, each being responsible for the inspection service in a geographical area of the city or for the specialized inspection of certain products or a specific activity (such as milk supply and refrigerated storage plants).

The numbers of personnel comprising the veterinary organizations varied greatly among the depots and generally increased as the war progressed. In the beginning, only one or two veterinary officers and from one to four civilians were required at many depots, but then these were not engaged in the origin inspections of foods; enlisted personnel were not especially assigned pursuant to the Quartermaster Corps policy that depot operations should be manned by civilian employees. The latter were utilized in capacities as clerk-stenographers, in such depot laboratories as came under the jurisdiction of depot veterinarians, as laborers for opening and repackaging the sample inspection cases of food, and infrequently as inspectors. Most of the enlisted personnel were added in connection with the off-depot veterinary activities, particularly after the fall of 1943, when veterinary inspection responsibilities in metropolitan areas in which depots were located were assigned to the respective depot veterinary detachments. As of mid-1945, an estimated 160 Veterinary Corps officers were assigned to duty with the depots, together with 450 veterinary enlisted men and 90 civilian employees, but this number (aggregating 700) was somewhat below the peak strength which was reached in the depots earlier. The largest depot veterinary detachment was that at Chicago where 72 officers and 171 enlisted personnel were assigned as of October 1943.

The depot-assigned Veterinary Corps officers usually were graduates of the wartime Meat and Dairy Hygiene Course which was begun in November 1940 at the Chicago Quartermaster Depot. Throughout the war period, however, this course was conducted under the supervision of the depot veteri-

narian, Chicago Quartermaster Depot, but the instructional staff and training doctrine was selected and prescribed by the Surgeon General's Office. At seven depots (Boston, California, Chicago, Kansas City, San Antonio, Seattle, and Fort Worth) Veterinary Officer Replacement Pools, under control of The Surgeon General, were established for conducting on-the-job training for newly appointed officers preparatory to their permanent assignment. Depot-assigned veterinary officers also provided instructional services in formal training courses which were conducted at the depots for Quartermaster personnel.

The relationship between the depot veterinary detachments and the Army Veterinary Service of the service commands was manifestly one of cooperation. Actually, pursuant to the channels of command within the Army Service Forces organization, the depot veterinary detachment was totally outside the jurisdiction of the service command even though the latter was responsible for, and did provide, certain services, including medical activities, to the depots.

ANIMAL SERVICE

In regard to veterinary animal service, it may be mentioned that a few depots (such as at Richmond with 60–70 horses, Utah with 40 horses, Atlanta with 18, and Columbus and Schenectady each with less than 10) utilized horses to mount civil guard patrols or for drayage purposes in lieu of motor vehicles. These and a number of other depots (including Chicago, Mira Loma, New Cumberland, Savannah, and Fort Worth) also had Army dogs to augment the internal security procedures inside warehouses and storage areas. These animals usually came under the full supervision of the depot veterinary detachment. In other depots, studies were conducted on the development of animal feeds and forage. At the California depot, more than 1,200,000 pounds of grain, hay, and straw were inspected prior to purchase in the period 1940 through March 1945, but the greater part of this amount pertained to supervising or inspecting the double compressing of grain hays by contractors at the Tracy subdepot for transshipment overseas. At the Seattle depot, research studies led to the development of a canned horsemeat and herring product for feeding Army dogs in the Alaskan Department.

MEAT AND DAIRY INSPECTIONS

Since few depots had military troops, the station meat and dairy hygiene inspections were largely limited to sanitary inspections of foods which were procured locally by the officers club messes or the concessionaires who operated restaurants for the depot's civilian employees. This sanitary inspection of foods and the conducting of a rabies control program for civilian-owned pet animals and Army dogs on the depot were the only veterinary activities that were accomplished under the supervision of the depot surgeon. The latter frequently designated the depot veterinarian as the depot medical sanitary officer.

TABLE 17.—*Inspection of meat and dairy products by the Army Veterinary Service with Quartermaster and Army Service Forces depots, 1940–45*

Depot	1940	1941	1942	1943	1944	1945
	Millions of pounds	*Millions of pounds*	*Millions of pounds*	*Millions of pounds*	*Millions of pounds*	*Millions of pounds*
Atlanta		11. 2	63. 7	36. 9	24. 8	23. 3
Boston			[1]	[1]	286.	321.
California	31. 1	84. 1	396. 0	240. 6	525. 6	468. 9
Charlotte			30. 3	17. 4	67. 5	42. 3
Columbus			186. 6	221. 6	308. 9	[2] 202. 2
Kansas City		28. 5	518. 8	315. 3	255. 6	248. 8
Memphis			64. 3	157. 4	215. 0	[3] 192. 5
Mira Loma			22. 3	176. 1	306. 9	252. 7
New Cumberland						[1]
San Antonio	13. 4	67. 6	190. 0	295. 2	147. 8	159. 9
Schenectady			160. 6	[1]	478. 2	[1]
Utah			[1]	225. 8	264. 2	341. 4
Fort Worth		32. 9	178. 3	238. 5	423. 9	[1]

[1] Data not available from source material.

[2] To June 1945.

[3] To August 1945.

Source: Histories of the Army Veterinary Service With Quartermaster Depots and Sections of Army Service Forces Depots During World War II. [Official records.]

NOTE: In addition to those inspections shown, the Chicago Quartermaster Depot's veterinary inspections of products passed each month averaged 90 million pounds in 1942, more than 142 million pounds in 1943, and 122 million pounds in 1944, with July 1945 marking the month of greatest amount of inspections at 205 million pounds. The Jersey City Quartermaster Depot's inspections during 1944 gradually increased from 91 million pounds inspected in March to 168 million pounds in October, and reached a quantity as high as 200 million pounds in March 1945.

In contrast to the station-type meat and dairy hygiene service just mentioned, there were the inspections of the nonperishable (or canned) meat and dairy products that were received, stored, distributed, or otherwise handled by the depots. Until the fall of 1943, this comprised the principal duty of the Army Veterinary Service with Quartermaster depots and sections of Army Service Forces depots; of course, many depot veterinary detachments also were inspecting the procurements of nonperishable foods. After August 1943, the principal activities of the detachments were twofold: (1) The in-depot inspections of foods handled by the depots, and (2) the off-depot meat and dairy hygiene inspections which then were officially limited to contiguous metropolitan areas but extended to all commercial food establishments, storage warehouses, or shipping points, located within the area, that were concerned with the Army supply of both nonperishable and perishable meat and dairy products. The quantities of subsistence thus inspected varied greatly among the individual depots (table 17); in fact, some few depot detachments (such as at the Atlanta, Charlotte, and Memphis installations) had little to do with the inspection of perishable meat and dairy products.

The on-depot veterinary inspections of the nonperishable meat and dairy products received, stored, or shipped by the depots were largely sanitary in

nature. Before the war, very small amounts of subsistence were stockpiled, only at the Chicago Quartermaster Depot and at the Seattle Quartermaster Depot to the account of the San Francisco General Depot (later, the California Quartermaster Depot). In early 1941, as wartime stockpiling programs were begun, the Chicago Quartermaster Depot, in particular, scattered its subsistence holdings to seven depots (namely, Atlanta, Charlotte, Jersey City, Kansas City, New Orleans, San Antonio, and Schenectady). This led to the formation of many additional depot veterinary detachments. In mid-1941, the new Quartermaster system of nonperishable subsistence supply in the Zone of Interior gave the designation of nine installations as regional distribution depots which would supply the needs of certain specified Army camps and airbases. Additional depots were soon named so that there were no Quartermaster depots and sections of Army Service Forces depots having veterinary detachments that were not receiving, storing, and distributing canned meat and dairy products.

On-depot inspection of nonperishable meat and dairy products was continuous throughout the period of their storage or holding at the depot. Special inspections were conducted at the time of their receipt as a phase of veterinary procurement inspection. Although originally inspected during the time of manufacture or canning in contractor's plants, these products were reinspected for sanitary condition before the Army finally accepted them on delivery. Occasionally, the extent of damage to subsistence while in transit to the depots had to be assessed so that proper claims could be made against the rail or truck carriers. Also, pursuant to those terms of contractual documents relating to the contractor's guarantee against more than specified rates of spoilage in newly delivered products, timely veterinary inspections were made which would enable Army contracting officers to obtain the contractor's replacement shipment or payment for the spoiled or deteriorated products. At regular intervals, surveillance inspections were made on the stored subsistence so that lots of a particular item, longest on hand or showing signs of beginning deterioration, would be granted priority for distribution at an early date. Actually, stock turnover was quite rapid during most of the war period so that comparatively small quantities of nonperishable subsistence in the depots became unsuitable for distribution. The leakage among cans of evaporated milk, the penetration of wooden-box nails into cans of imported corned beef, and the rusting of the exterior of cans in commercial-type packages seemed to have been the major causes for the losses that occurred. Of course, particular attention was directed to prevent unnecessary exposure of stored products to extreme climatic conditions, to minimize the damage from outside storage when enclosed warehouse space was not available, and to avoid the losses attributable to factors such as were readily regulated (such as rough handling and high stackpiling). Another veterinary inspection was conducted at the time the products were distributed or shipped from the depot to the Army camps or airbases or to a port for oversea movement; routinely,

however, the inspection of nonperishable subsistence immediately prior to shipment could be minimized wherever the surveillance inspections of nonperishable products in storage were systematically conducted.

FOOD SALVAGE

Veterinary surveillance inspections in seven depots were extended to food salvage activities that had become necessary as Army camps, once having relatively large numbers of troops, returned their surplus stockages to depots for redistribution. Also, large quantities of subsistence were returned from the Alaskan area after the Aleutian campaign and from other offshore base commands which had been built up in 1940–41. In these activities, depot veterinary inspection personnel, utilizing prisoner-of-war labor, segregated the sound canned products and repackaged them so that the processed stock was suitable for domestic use or even export shipment; usually 90 to 95 percent of these products was actually saved. At the Utah installation, the salvage operations were particularly extensive, covering more than 400 carloads or about 35 million pounds of returned canned meat and dairy products. In addition, the Army Veterinary Service at the Atlanta, Charlotte, Jersey City, Mira Loma, New Cumberland, Richmond, and Seattle depots, on authorization of the local commander, extended their food surveillance inspections to the canned fruits and vegetables and to the cereals which were stored or handled in the depots.

TESTING LABORATORIES

Another depot activity usually assigned to the operational control of Veterinary Corps officers was the local Quartermaster subsistence or general testing laboratory (figs. 11 and 12). Actually, the Army Veterinary Service had little need for these laboratories in connection with their meat and dairy hygiene inspections because the Medical Department system of laboratories in hospitals and for the service commands was set up and available pursuant to an authorization earlier granted by the War Department. However, regardless of this and probably with the encouragement of individual veterinary personnel, the Atlanta, California, Charlotte, Jersey City, Kansas City, Memphis, Mira Loma, and Seattle depots had their own laboratories under Veterinary Corps supervision, but the Surgeon General's Office refrained from granting them Medical Department trained personnel and equipment. Instead, the depot subsistence laboratories were manned by civilian employees, utilizing locally procured laboratory equipment and supplies. In the California installation—apparently the most elaborate laboratory—the workload, in 1944 alone, comprised 40,050 separate examinations and tests on 14,630 samples which were representative for 78 million pounds of subsistence.

Centralized procurement of nonperishable subsistence.—In regard to the off-depot inspections, the depot veterinary detachments were concerned with two Quartermaster systems of Army subsistence procurement—one, the



FIGURE 11.—Veterinary Food Laboratory, California Quartermaster Depot, Oakland, Calif.

centralizing of procurement for nonperishable meat and dairy products in three depots, and, the other, the Quartermaster market center system pertaining to the procurement, storage, and distribution of perishable products. The Quartermaster market centers are described later in this chapter, but it may be noted that few depot detachments had much to do with inspecting the perishable subsistence supply, until after August 1943, as this inspection workload at the onset was left to the Army Veterinary Service under control of the service commands. In regard to nonperishable products procurement, however, both depot veterinary detachments and service command veterinary detachments were involved early.

During the prewar emergency periods, only a few canned meat, fish, and dairy products were centrally purchased for the Army. There were three so-called procuring depots, but they made little or no demand for veterinary products inspection at the point of origin or during the time of manufacture. Each such depot had its own veterinary detachment which conducted acceptance inspection on such samples as were submitted by the contractors. This was a common practice forced on the peacetime Army, though at times detachment personnel traveled to the food establishments to inspect the



FIGURE 12.—Testing laboratory at the Atlanta Army Service Forces Depot, 1945.

product during its manufacture. Later, origin procurement inspection gained more recognition, and soon the procuring depots' veterinary detachments were faced with an almost insurmountable workload at many, far-distant and widely separated cities where civilian subsistence contractors were producing for the rapidly expanding Army. Also, the number of canned items designated for central procurement, by the Chicago depot in particular, was greatly increased. During January 1941, following approval of Quartermaster Corps planning by The Surgeon General, The Adjutant General authorized depots to communicate with the commanding generals of service commands (then called corps areas) in regard to the ordering of Veterinary Corps officers on origin inspections of nonperishable subsistence (*11*, *12*, *13*, *14*). This became effective almost immediately in the First, Third, Fourth, and Fifth Service Commands, and the veterinary detachments of the depots which were located in these service command areas (including those of the Boston, New Cumberland, Richmond, Atlanta, Charlotte, Memphis, Savannah, and Columbus depots) and conducted little, if any, origin inspections of canned products for the procuring depots. At other depots, such as at Jersey City, Schenectady, Chicago, Kansas City, San Antonio, Fort Worth, Oakland, Mira Loma, Seattle, and Utah (which were in the geographic areas of the Second, Sixth, Seventh, Eighth, and Ninth Service Commands), the depot detachments greatly expanded their

activities, sometimes to distant points, to inspect the nonperishable subsistence which was being procured.

Unquestionably, individual depot commanders believed that their veterinary detachments were better qualified to conduct origin inspections of nonperishable subsistence than those under the jurisdiction of service commands (*15*). Individual commanding generals of service commands, however, believed that their veterinary inspection services, which were already organized for inspecting most of the Quartermaster market center procurements of perishable products, were being disrupted by the off-depot inspection activities by depot veterinary detachments. In any event, areas of conflict and overlapping of inspectional jurisdiction developed between the depots and the service commands. A partial solution to these problems came in February 1943 when The Quartermaster General requested his depot commanders to limit the deployment of their veterinary detachments on origin inspections of nonperishable subsistence to points within a radius of 30 miles from the cities or towns where such depots were located (*16*). In August 1943, Headquarters, Army Service Forces, directed that the depot commanders (or their veterinary detachments) would have inspectional responsibility over nonperishable, as well as perishable, meat and dairy products such as were procured, stored, or otherwise handled by the Army in metropolitan areas where the depots were located; in all other geographical areas, the concerned service command's veterinary inspection organization would assume the responsibility (*17*). Thus, the depot veterinary detachments, such as the Boston, Richmond, and Columbus installations, which were then performing only on-depot meat and dairy hygiene services, were considerably enlarged and then undertook full veterinary inspectional responsibilities in their metropolitan areas; on the other hand, those detachments with the Jersey City, Chicago, Kansas City, San Antonio, and Fort Worth depots lost their inspectional jurisdiction over large geographical areas to the respective service commands.

Quartermaster market center system for procuring perishable subsistence.—In the system for the centralized procurement of perishable subsistence by Quartermaster market centers started in 1941, the veterinary inspection workload, for the most part, was divided between the Army Veterinary Service with the service commands and that with the Quartermaster depots and sections of Army Service Forces depots. The latter, however, had little to do with the inspection of perishable, or fresh, meat and dairy products until after August 1943. Under this system that gradually replaced the peacetime procedures in which individual Army camps and airbases procured and competed against each other in the same local markets, the responsibility for perishable subsistence procurement was transferred from the formerly independent camp and base purchasing officers to the Office of the Quartermaster General and thence to its new field agency in Chicago; namely, Headquarters, Perishable Subsistence Branch, later named Field

Headquarters, Perishable Branch, Subsistence Division, Office of The Quartermaster General. A Veterinary Corps officer, assigned on 2 October 1941, as headquarters veterinarian and chief of veterinary section, was accorded the recognition of having originated a system of inspection that in great measure assured the success of the Quartermaster market center system (*18*).[1] The headquarters organization supervised the procurement, storage, and distribution of perishable subsistence on a regional or geographic basis through a varying number of operating agencies, designated Quartermaster market centers. Eventually, these handled all types of perishable meat and dairy products in the Zone of Interior but, in the beginning, only butter, cheese, fresh eggs, and poultry were procured, stored, and distributed. Any or all procurement and storage activities with respect to the products in a given geographic area were the responsibility of a specific Quartermaster market center which was responsible also for distributing them to Army camps and airbases in their immediate vicinities; the required inspections were conducted, or arranged for, by Veterinary Corps officers on duty with the respective market centers.

At the field headquarters level of organization, the headquarters veterinarian originally planned for the inspection of all meat and dairy products which were to be procured, stored, distributed or otherwise handled by the Quartermaster market center system and initiated the proposal that soon saw the utilization of the existent Army Veterinary Service with the service commands, depots, ports, and other installations—whichever had a Veterinary Corps officer available and nearest the area—to conduct the required inspections. Then, on 17 October 1941, pursuant to this planning, The Adjutant General authorized the officers in charge of market centers to call on the commanding generals of service commands (then called corps areas) to arrange for service command veterinary personnel to conduct point of origin inspections on market center purchases of perishable meat and dairy products (*19*). This authorization was similar to that made earlier in 1941 with respect to the veterinary inspection of depot procurements of canned subsistence. In November 1941, The Quartermaster General authorized market center officers also to request the commanding officers of four depots (Boston, Charlotte, Chicago, and Kansas City) to provide veterinary inspectional services. However, pursuant to the original authorization, the service commands undertook the performance of the major share of the veterinary procurement inspection workload for the market centers, although, in accordance with arrangements made locally with the service command veterinarians, a few port and depot veterinary detachments expanded their operations in response to market center requests for inspection at points of origin. Naturally, there were several geographic areas in which these

[1] The veterinary section, as of August 1945, included 6 veterinary officers and 18 civilian clerical employees and was internally organized into 5 subsections: Administrative; meat and meat food products; butter, eggs, and fish; and the Chicago Quartermaster Market Center veterinary component.

arrangements were unsuitable, with the result that in August 1943, Headquarters, Army Service Forces, directed that, with the exception of the metropolitan areas contiguous to depots where the concerned depot commanders would be responsible for providing all veterinary food inspection services, the commanding generals of service commands were responsible for providing the veterinary inspectional services—whether it be in regard to perishable or to nonperishable subsistence (*17*). Thus, during the winter of 1943–44, the service command veterinary service organizations assumed the inspection workload in cities and towns throughout the continental United States except in about a dozen metropolitan areas in which depot veterinary detachments conducted the inspections of meat and dairy products. Sometimes the service command's inspection workload was passed on to the veterinary detachments at airbases and fields under control of the Army Air Forces.

At the level of the market centers, which were the operational elements of the Quartermaster market center system, only those concerned with meat and dairy products were provided with organic veterinary services. These included the following market centers, designated after the city or town in which they were located: Alexandria, Va.; Baltimore, Md.; Boston, Mass.; Columbia, S.C.; Columbus, Ga.; Denver, Colo.; Dover Buying Office, Dover, Del.; El Paso, Tex.; Houston, Tex.; Jacksonville, Fla.; Kansas City, Kans.; Los Angeles, Calif.; Little Rock, Ark.; Louisville, Ky.; Memphis, Tenn.; Nashville, Tenn.; New Orleans, La.; New York, N.Y.; Norfolk, Va.; Oklahoma City, Okla.; Orlando, Fla.; Philadelphia, Pa.; Phoenix, Ariz.; Richmond, Va.; Salt Lake City, Utah; San Antonio, Tex.; San Francisco, Calif.; Seattle, Wash.; Spokane, Wash.; St. Louis, Mo.; Syracuse, N.Y.; Fort Worth, Tex.; and Edmonton, Canada. The veterinary section of field headquarters included a subsection which rendered this service to the Chicago market center. Usually, veterinary officers were detailed to the installations on an attending or part-time basis from their primary assignment with a nearby depot or service command camp. There were a few market centers, however, which gained their own assigned veterinary officers, but such assignments were regarded as tending to subordinate inspectional activities under the jurisdiction of procurement and supply officers and buyers.

The market center veterinarian functioned under the supervision of the officer in charge, reviewed the purchase orders made by the buyers, and forwarded copies of such orders with requests for inspection to the Army camp, airbase, depot, or other veterinary officers located nearest the geographic area in which the purchases were being made. The field headquarters veterinarian promulgated an official guide on the format of such market center purchase orders and bid proposals which were used by the contracting officers and buyers in all market centers, and at the same time promulgated a series of letter guides on the veterinary technical aspects of inspecting market center purchases and storages of subsistence for use by the Army camp, airbase, depot, and other inspecting veterinary officers. At

first, the market center veterinarian's requests for inspections were forwarded to the offices of the concerned service command veterinarians who, in turn, determined which Army camp, airbase, depot, or other veterinary detachment would conduct the particular inspections; later, the market center veterinarians were authorized direct communications with the actual inspectors, and the service command veterinarian was supplied with information copies of inspection requests. This expedited the rendition and reporting of the veterinary inspection, particularly when the market center purchase instruments were changed, as they often were, or when the contractors failed to comply with the provisions of the Army purchase instruments. By the end of 1942, most service commands were routinely informing the market center veterinarians of the location and addresses of the veterinary detachments which would conduct inspections in specified areas. The service commands were responsible also for ascertaining that contractors' food establishments, storage warehouses, and commercial distribution points operated at certain sanitary standards; routinely, the establishments entering into a contract were previously inspected by a Veterinary Corps officer on request of a market center, and then reinspected at least each month during the time that such establishments maintained interest in contracting with the Army. Establishments failing to comply with certain sanitary standards were disapproved and, on recommendation of the service command veterinarian, were not used in the subsistence buying by the Quartermaster market center system. The same was applicable to sources of the nonperishable subsistence which was procured by the depots. Lists of approved establishments thus were officially promulgated by service command veterinarians, who then forwarded them to the market center veterinarians who, in turn, advised the contracting officers and buyers in regard to civilian contractors with the facilities and standards of operation needed to produce clean, wholesome products for Army supply.

In the market center system of procurement, emphasis was placed on the veterinary inspection of meat and dairy products during their manufacture or processing and for compliance with the grade and sanitary qualities as indicated in the purchase instruments; another and final veterinary inspection was conducted for sanitary condition of the products at the time of arrival at destination and actual receipt by Army property or supply officers. Until December 1945, inspections were made on the procurement of 13,411,237,884 pounds of meat and dairy products, having a value of $3,359,231,351. Some of these products were delivered to Zone of Interior destinations for immediate troop issue; however, a large portion of them were temporarily stored as reserve stockpile or were purchased during peak or seasonal production periods. Veterinary surveillance inspections were made of these products, usually stored in commercial cold storage plants, at 30-day intervals. Market center veterinarians, reviewing the periodic reports of surveillance inspections submitted by Army camp, depot, airbase, or other

inspecting veterinary detachments, were generally successful in advising the market center property or supply officers in regard to which products, longest in storage or showing signs of early deteriorations, should be moved from the storage plants for early distribution. Improper packing or damage to shipping containers comprised major causes for recommending that certain lots be withdrawn from transshipment overseas. During the period from September 1944 through June 1945, the outright monetary losses in storage holdings of perishable subsistence did not exceed 0.005 percent of the value.

Transportation Corps

The Army Veterinary Service with the Transportation Corps was centered at ports of embarkation which served as the terminal points for moving materiel from the Zone of Interior to the oversea theaters. The Transportation Corps, however, did not come into existence until the spring-summer of 1942, so that the onset of World War II actually found the military transportation activity divided between the War Department General Staff (Assistant Chief of Staff, G-4) for overall supervision and the Quartermaster Corps and its Army Transport Service. At that time, there were only two Army ports of embarkation—at New York, N.Y., encompassing the Brooklyn Army Base, and at San Francisco, Calif., encompassing Fort Mason. Other ports were established during the prewar emergency periods at Boston, Mass., New Orleans, La., and Seattle, Wash. The veterinary services at these Army ports were conducted on a coordinated basis with that of the general and quartermaster depots that were located in coastal cities. Of course, when these military ports became identified as field installations of the newly created Transportation Corps, the dualistic activities of the veterinary detachments in the seaboard cities were terminated. Separate veterinary services were established.

Veterinary detachments were formed at the following eight class IV installations under jurisdiction of the Chief of Transportation, or ports of embarkation: Boston, Charleston, S.C., Hampton Roads, Va., Los Angeles, Calif., New Orleans, New York, Seattle, and San Francisco. A number of subports and three cargo ports were established under the control of these ports of embarkation which also for short periods of time, supervised shipping operations of a lesser extent at approximately 10 other coastal cities, including those in Alaska (at Excursion Inlet, Juneau, and Skagway) and in Canada. Usually, a satellite installation was provided veterinary service on a part-time basis by the area command in which it was located. Between December 1941 and the end of 1945, these Army ports embarked well over 7½ million passengers and loaded out approximately 1⅓ million ship tons (measurement tons of 40 cu. ft.) of cargo freight (*20*). Also, more than 11,000 mules and horses were transshipped to the U.S. and Allied armies overseas.

The Army Veterinary Service with each port of embarkation was regulated by the senior Veterinary Corps officer, designated as the port veterinarian, assigned to the office of the port surgeon. The latter acted as adviser to the port commander for all medical activities performed in behalf of that port; after mid-1943, technical guidance over Medical Department activities in ports by the Surgeon General's Office was more or less assumed by a medical officer then detailed to the Office of Chief of Transportation. Under the supervision of the immediate surgeon at each port, the port veterinarian commanded the port veterinary detachment; conducted the port's veterinary services, including routine station-type meat and dairy hygiene and veterinary animal service operations; provided for the inspections of the foods and the animals which were received, processed, and transshipped through the port; and performed veterinary sanitary inspections of harbor craft, freighters, refrigerated cargo ships, and animal and troop transports. The last two activities were, of course, the principal and characteristic operations of the Army Veterinary Service at Transportation Corps ports. A few post veterinary detachments also were involved in the inspection of the Quartermaster Corps supply of subsistence, but, by the fall of 1943, procurement inspection in the Zone of Interior was reallocated to service commands and depots. The New Orleans port veterinary detachment, which had been conducting large-scale procurement inspections along the Gulf Coast, for example, in September 1943, lost several personnel and this inspection responsibility to the Eighth Service Command.

The numbers of personnel in the veterinary detachments varied among the ports, aggregating a total of approximately 50 officers and probably more than double that number of enlisted personnel. Civilians were employed as clerk-stenographers in most detachment offices. As of mid-1945, the Los Angeles port had 7 veterinary officers and 16 enlisted personnel on duty; at New York, these numbers were 9 and 19, respectively. Wartime peak strengths in the San Francisco port averaged 14 veterinary officers each month during the last 6 months of 1944 and 33 enlisted personnel per month during the period from January to June 1943. Most port veterinarians conducted their own programs of on-the-job training for their veterinary detachments. In addition, port veterinarians, pursuant to Army regulations, conducted special training of veterinary personnel who accompanied the oversea shipments of Army horses and mules, dogs, and other animals and, at the New York and San Francisco installations, supervised the operation of veterinary officers replacement pools.

Station-type veterinary services.—In the conduct of their routine, station-type veterinary services, the port of veterinary detachments may be compared with the depot veterinary detachments as previously described. They provided professional care and treatment for a small number of horses and mules that were maintained in several ports for drayage purposes or to mount guard patrols and for a few Army dogs which were used as internal

security guards. One port of embarkation (Boston) had as many as 19 horses and 23 dogs in a subsidiary installation, and at another (Charleston), the port veterinarian attended 40 horses and 12 dogs; however, not more than an aggregate of 150 animals came under veterinary supervision in the ports at any one time. The major station-type activity was not veterinary service with animals, but the meat and dairy hygiene services relating to the subsistence supply to port-assigned personnel, the crews on small boats or harbor craft, and the troops during their staging. Usually, the meat and dairy products used inside of the ports and their troop staging areas were received from nearby depots and market centers, and thus, having been inspected when procured, only came under veterinary surveillance inspection at the times of receipt and issue. At all ports, this meat and dairy hygiene service was extended to veterinary sanitary inspections of Army exchange restaurants, officers club messes, concessionaires, and troop messhalls; this activity at the New York port, for example, led to the rendition of more than 1,700 monthly sanitary inspection reports through the 2-year period ending June 1945.

The station-type veterinary meat and dairy hygiene services also included the veterinary sanitary inspections of the food storage facilities on small boats and harbor craft, on baggage-kitchen and kitchen cars of troop and hospital trains arriving and departing from the ports, on Army-operated ships, and sometimes on Navy, War Shipping Administration, and British Ministry of War Transport vessels in Army service. Troop trains requiring additional subsistence supply while en route ordinarily obtained the meat and dairy products from one of approximately 125 specially designated Army installations or supply points along their routes of travel. Another activity was related to the inspection of so-called ships stores or the subsistence which was used in the feeding of crews during the voyages; this supply was entirely separate from subsistence cargo for oversea supply and the subsistence which was used for on-ship feeding of Army troops while en route.

The Army and Navy routinely provided subsistence stores for their ships from regular military stockpiles, but the other agencies obtained their ships stores for crew feeding from a miscellany of domestic and foreign sources where sanitary conditions were often questionable. The problem here was that the Army Veterinary Service had no responsibility or authorization to conduct meat and dairy hygiene services regarding the ships stores on the War Shipping Administration and British vessels, but, at the same time, this subsistence—of unknown origin and of questionable quality—such as became surplus to the crews was being discharged at the oversea destinations and entered into Army subsistence supply. This occurred particularly during the early war years and often comprised the first fresh foods that were available in the oversea theaters; Army hospitals in the North African thea-

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ter and in the South Pacific Area gained priority for receiving such surplus ships stores.

Along with their conduct of routine meat and dairy hygiene services in the port areas, the veterinary detachments became involved in a number of related food inspection activities. For example, the port veterinary detachments at the Boston and Seattle installations also inspected the fruit and vegetable supply. At the Charleston port, this extra duty was added, in July 1944, when the port commander determined that past losses among non-animal-origin foods were too great. Another activity was the supervision of subsistence conservation measures whereby seriously damaged food containers were set aside on the piers (that is, removed from oversea shipment) for collection later and then recommended for reissue locally. Possibly, an activity that reached considerable proportions in the vicinity of ports, such as at Charleston and New Orleans, was the encouragement and the sanitary supervision of local fresh milk supplies; port commanders more or less demanded that, for maintaining morale in the troop staging areas, fresh milk would be made available in plentiful supply. In this connection, the Army Veterinary Service at the Boston and the Charleston ports inaugurated, or participated in, the original studies on the development of a suitably frozen fresh milk for issue to the Army hospital ships which were evacuating patients from the European theater. The Transportation Corps, Quartermaster Corps, and the Medical Department viewed this development as a major advancement in the feeding of hospital patients. The Army Veterinary Service with Transportation Corps ports also comprised a security guard against the introduction of animal diseases into the United States and frequently cooperated with such Federal nonmilitary agencies as were legally empowered to regulate the importation of animals, food products, or ships stores, and the disposal of garbage on ships returning from oversea theaters. For example, foot-and-mouth disease (aphthous fever) was not brought into the United States even in the immediate postwar period when millions of military personnel were returned from Europe. Particular mention may be made of the successful operations of various degrees of import quarantine conducted in the Los Angeles, New Orleans, New York, and Seattle ports. Also, importations of Army purchases of South American canned corned beef were inspected routinely at time of arrival by port or nearby depot veterinary detachments in cooperation with civilian veterinary inspectors of the U.S. Department of Agriculture.

Inspection of shipboard subsistence.—The specialist activities of the Army Veterinary Service with the Zone of Interior ports concerned the transportation of animals to the theaters, the oversea movement of subsistence cargo, and the subsistence supply for on-ship feeding of troops while en route. The last-named activity posed a major and difficult problem throughout the war period because so few troop movements were made on ships under regulatory control of the Army; in fact, the Navy, War Shipping

Administration, and British Ministry of War Transport transported the majority of Army troops. This problem was twofold in nature: It concerned the sanitary inspections of ships galleys and the storage of subsistence which were involved in the feeding of Army troops while in transit; and it related to the veterinary sanitary and other quality grading of the actual food products. The first part of the problem was readily answered, because Veterinary Corps officers were usually named into membership on official port inspector general teams that passed on the acceptability of ships which were being offered by the agencies for moving Army troops. At the Hampton Roads and San Francisco installations, such port veterinary inspections over the 2-year period ending June 1945 were made of 988 (including 162 Navy-controlled) ships and 466 ships, respectively. At the New York port, as many as a hundred ships were inspected during a single month.

The second part of the problem related to the veterinary inspections of the products used for shipboard feeding of Army troops is somewhat comparable to the situation of the entry of ships stores from War Shipping Administration vessels into regular Army supply channels overseas, as previously noted. This was not readily solved because the War Shipping Administration and other agencies, including the British Ministry of War Transport, and less so, the Navy, each maintained its own subsistence procurement responsibility. However, what was accomplished during the war to improve the quality of this shipboard subsistence was done in accordance with local arrangements made by individual port veterinarians and the concerned agency representatives. However, near the end of the war period, the matter of veterinary-inspected meat and dairy products became the subject of conferences between the Army and the War Shipping Administration, but no final, centralized interagency agreement was reached. Pursuant to these local arrangements, the Army Veterinary Service at the onset limited itself to the inspection of foods for sanitary and grade quality at the time of arrival at the piers or immediately prior to their loading into the ships' troop galleys. At Hampton Roads, such inspections of products at shipside were begun in October 1943 and aggregated 8,556,966 pounds of inspected meat and dairy products by the end of June 1945. Such shipside inspections were eventually set up at four ports, and at three others, the port veterinarians also requested nearby depot and service command veterinary detachments to inspect the subsistence in commercial food establishments before delivery to the piers.

In regard to troop feeding on British Ministry of War Transport ships which were loading out of the Boston, Hampton Roads, and New York ports, local arrangements were in effect before the end of 1943 for their supplies of meat and dairy products to have originated from Veterinary Corps-approved food establishments and to be inspected at shipside (or prior to loading) for sanitary condition and grade quality. At Hampton Roads, such inspections were made of 761,876 pounds of subsistence in the 4-month period,

October 1943 through January 1944; at New York, an average of six British transports were inspected each month. Suitable local arrangements also were made in regard to the oversea transportation of Army personnel on Navy-controlled ships, particularly at the Hampton Roads, Los Angeles, San Francisco, and Seattle ports; of course, during the war, large quantities of Navy-owned subsistence were procured through Army supply channels so that veterinary products inspections at shipside were routinely one of observing that the products themselves had not deteriorated or become spoiled since their last inspection at a procurement point or storage facility. It may be mentioned that Headquarters, Army Service Forces, on 27 March 1944, officially approved the agreement which had been reached between The Surgeon General and the Chief, Bureau of Supplies and Accounts, U.S. Navy, whereby the Army Veterinary Service would inspect all foods loaded on War Shipping Administration-controlled ships which were transporting Navy personnel out of the San Francisco port. Similar but less formal arrangements were also in effect at Seattle.

Inspection of subsistence cargo.—The inspection of subsistence cargo for oversea supply was the most important activity of the Army Veterinary Service at Zone of Interior ports. It had for its objectives the removal from transshipment of meat and dairy products such as were deteriorated or otherwise unsuitable or would become spoiled while en route or soon after arrival at destination and the technical supervision over the facilities and procedures of ships storage as would assure the safekeeping of the products, particularly those of a perishable nature, during the voyage (fig. 13). During the early war years, since few personnel in the ports assumed the responsibility for the overall aspects of handling subsistence cargo, port veterinary detachments necessarily operated as technical advisors on packaging, storage, stevedoring, and security police. For example, at various times in the New York port, 40 percent of outside containers were noted to be damaged as a result of rough handling or improper packaging, 10 carloads of frozen products had thawed out during their stay on the pier area before they were opened for loading, and pilferage on the piers approximated 100,000 pounds per month. Of course, these difficulties were gradually overcome.

The quantities of outbound subsistence inspected varied among the individual ports, and for each port the rate of shipment changed periodically. For example, the West Coast ports shipped large volumes during the first 6 months of the war, but with Allied strategy calling for early defeat of the German Axis, larger volumes were later moved from the Atlantic ports—first to the North African and then to the European theaters. Boston became concerned with the supply to the base command garrisons in Newfoundland, Greenland, and Iceland, but its heaviest movements were made to northern Europe. New York was the principal port for serving the European theater and also moved large quantities to the Mediterranean. Hampton Roads divided its outbound cargo for these two theaters, whereas the Charleston



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FIGURE 13.—Shipside inspection of foods of animal origin in Zone of Interior ports was one of the many inspections conducted by the Army Veterinary Service along the food supply route to troops overseas.

port carried a light cargo loading schedule—its wartime role being that of the home port for hospital ships in Atlantic waters. New Orleans was the major shipping port for the Armed Forces in the Caribbean area, but it also shipped to the European and Asiatic-Pacific theaters. On the West Coast, the San Francisco port was the principal oversea supplier, but in this it was aided by the Los Angeles installation, which also served the Asiatic theater, and by the Seattle port, which moved supplies to Alaska and to the Central and Western Pacific area. In March 1945, the veterinary detachment at the New York Port of Embarkation alone technically supervised the loading out of 315 million pounds of meat and dairy products—a wartime peak monthly inspection workload at a port for the war period.

Refrigerated freighters, each usually requiring 5 days for loading, were moved out of many ports at the rate of 1 per month, but peak monthly rates of 3 were experienced at Hampton Roads (in November 1943), of 10 at Los Angeles (in the first half of 1943), and of 25 at the New York port. It may be mentioned that refrigerated freighters (also called reefer ships) were not especially plentiful during the early part of the war period; on the other hand, refrigerated storage and issue points were not fully developed

in the theaters to receive or hold any large quantities of perishable subsistence even if it was shipped. The early demands for perishable subsistence were satisfied in part by the use of portable refrigerator boxes (of 360 cu. ft. capacity), which could be carried as deck cargo loads and then put ashore at destination; also, some few cargo ships were modified during their construction to have built-in refrigerated space in their holds. Later, refrigerated barges were constructed which could be used as floating storage and issue points on arrival at outlying bases in the Pacific theaters. As of May 1945, the Army controlled only three of the total of 148 fully or partially refrigerated ships available in the U.S. shipping pool (aggregating 15 million cu. ft. of refrigerated ship space). Infrequently, veterinary officers were detailed to duty on the refrigerated ships during voyages to observe the conditions of the subsistence on arrival overseas.

Veterinary animal service.—Nearly all ports of embarkation were involved in the movement of Army animals to the oversea commands. Altogether, under veterinary supervision, these ports shipped out more than 11,000 mules and horses, approximately 1,900 Army dogs, and several thousand pigeons and Medical Department laboratory animals. Another 2,227 mules were transshipped to India through the New York Port of Embarkation, under the provisions of lend-lease supply to Great Britain; through the fall of 1945, a few hundred horses and mules surplus to the Army in the Panama Canal Department, 153 captured horses from the European theater, and many Army dogs and signal pigeons also were brought into the Zone of Interior through the ports. In this traffic, the port veterinarians inspected the animals on arrival, rendered veterinary certificates on their health, cared for them during their stay in the port area, and supervised the loading and unloading procedures; animals which were sick or injured, or in unsatisfactory physical condition, were removed from further shipment. Facilities on outbound animal transports were inspected before the start of loading operations and before the transports departed. Also, such veterinary personnel as accompanied the transports to destination were selected, trained, and equipped to care for the animals while en route. Sometimes, port-assigned veterinary personnel comprised the animal transports' veterinary detachments, but more often the latter were veterinary animal service detachments which were en route overseas or the personnel organically assigned to the units whose animals were being transported.

With the exception of two, the ports of embarkation did not have special facilities for receiving, processing, and embarking animals. At the New York port, horses and mules generally were moved through the stockyards in Jersey City, N.J., where the required Army veterinary animal services were provided by a provisional organization under control of the Second Service Command. The Ninth Service Command veterinary detachment at the Presidio of San Francisco provided the essential veterinary animal services for the 2,929 mules and horses that were staged for movement to the Central



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FIGURE 14.—Aerial view of Animal Remount Station, Camp Plauche, New Orleans, La., 1944. The loading wharf is shown in the upper left corner.

and Southwest Pacific theaters through the San Francisco port; at Seattle, the detachment at Fort Lawton, Wash., cared for the dogs which were moved through that port. Elsewhere, pier or warehouse facilities were used. The exceptional ports, or those having special animal embarkation depot facilities, were the New Orleans port with its Animal Remount Station, Camp Plauche, La. (fig. 14) and the Los Angeles installation with its Animal Depot, Puente, Calif. The latter's veterinary detachment became operational in February 1944 and, until its discontinuance in May 1945, received 1,874 mules and horses and actually embarked 1,550 of these for the China-Burma-India theater. At the Camp Plauche facility, port veterinary services were rendered for as many as 964 horses and mules in a single month (as of June 1944); approximately one-half of the total number of mules and horses transshipped out of the Zone of Interior during the war were processed at Camp Plauche remount station under veterinary supervision, with destinations in the Asiatic-Pacific and Mediterranean theaters.

ROLE OF PERSONNEL ASSIGNED TO SERVICE COMMANDS

Activities and installations of the Army Service Forces that were not controlled by a chief of technical service were administered and organized on a regional basis by service commands. The latter contained the major

operating elements of the Army Veterinary Service in the Zone of Interior. There were nine service commands whose geographic boundaries paralleled those of their predecessor corps areas (map 2), and their commanding generals each reported to the Commanding General, Army Service Forces. In the summer of 1942, a tenth service command—but with additional missions not relating to the Army Service Forces—was formed. This was the Military District of Washington, with headquarters in the District of Columbia, which came into control of several installations and a small area previously assigned to the Third Service Command (*21*). During September 1942, the Northwest Service Command was established, with headquarters at Whitehorse and later relocated in Edmonton, to administer specified oil pipeline, highway, and railroad projects in western Canada. This last-named command was discontinued on 30 June 1945 and incorporated, as a district subcommand, into the Sixth Service Command.

Each service command had its own veterinarian who controlled the command's veterinary services under the supervision of the service command surgeon (fig. 15).[2] The service command veterinarian functioned as the advisory and administrative assistant to the surgeon of the service command in directing the veterinary service thereof, as a veterinary consultant, and as attending veterinarian at the headquarters (*22*).

Actually, the service command surgeons and veterinarians did not always have this centralized direction and control over Medical Department activities and veterinary services throughout their respective commands or in the Army camps and installations which came under service command jurisdiction. Before November-December 1943, Headquarters, Army Service Forces, provided for little or no control of the service commands' Medical Department

[2] The following Veterinary Corps officers served in the capacity as service command veterinarians or, before July 1942, as corps area veterinarians:

First Service Command: Col. George H. Koon (1939 through December 1943) and Col. Jesse D. Derrick (December 1943 through 1945).

Second Service Command: Col. Christian W. Greenlee (1939 through September 1940) and Col. Burton A. Seeley (September 1940 through 1945).

Third Service Command: Col. Horace S. Eakins (1939 through August 1942), Col. Frank H. Woodruff (August 1942 through August 1944), and Col. George L. Caldwell (September 1944 through 1945).

Fourth Service Command: Col. Burton A. Seeley (1936 through September 1940), Col. William H. Houston (September 1940 through April 1945), and Col. Edward M. Curley (April through December 1945).

Fifth Service Command: Col. W. H. Houston (1937 through September 1940) and Col. C. W. Greenlee (September 1940 through 1945).

Sixth Service Command: Lt. Col. Will C. Griffin (1936 through September 1940), Col. Fred C. Waters (September through December 1940), Col. James E. Noonan (December 1940 through February 1944), and Col. Louis L. Shook (February 1944 through 1945).

Seventh Service Command: Col. Harold E. Egan (1939 through 1945).

Eighth Service Command: Col. Jean R. Underwood (1939 through January 1941), Col. James A. McCallam (March 1941 through February 1943), and Col. A. C. Wight (March 1943 through 1945).

Ninth Service Command: Col. Robert J. Foster (1938 through September 1944), Col. Oness H. Dixon (April 1944 through August 1945), and Col. Francois H. K. Reynolds (September through December 1945).

Military District of Washington: Lt. Col. Gerald W. Holmberg (December 1942 through 1945).

Northwest Service Command: Maj. W. E. Bills.



Map 2.—Service Commands, August 1942.

functions and activities by the respective headquarters surgeons and veterinarians because, at all echelons of Army Service Forces organization, the total subordination of medical affairs was under the direct control of immediate commanders. In fact, a commanding general of a service command was not authorized to have a surgeon, or any other Medical Department officer, on his immediate staff. This situation originated in the summer-fall of 1942 when the predecessor corps areas were redesignated as service commands and the latter, in turn, were made direct agencies of the Commanding General, Army Service Forces. However, before this time or in the days of corps area organization, there was a Medical Department control which in some respects was similar to that seen in the service command organization after November-December 1943; that is, each corps area had a corps area surgeon (and a corps area veterinarian as assistant to the surgeon) on the staff of the commanding general. The difference between them and the later service command surgeon (and veterinarian) was that the latter supervised his command's veterinary services under the regulation of the commanding general of the service command, whereas the corps area surgeon (and his veterinary officer assistant), even though he reported to the corps area commander, was commonly referred to as an agent of The Surgeon General. The corps area's medical affairs were regulated by technical channels of communication from the Surgeon General's Office, but this was abruptly discontinued with the new organization of the service commands.

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FIGURE 15.—Conference of service command veterinarians held at Chicago, Ill., 18 March 1944. *Left to right, first row, seated:* Col. Burton A. Seeley, Col. Harold E. Egan, Col. Robert J. Foster, Brig. Gen. Raymond A. Kelser, Col. Jesse D. Derrick, Col. William H. Houston, and Col. Christian W. Greenlee. *Second row:* Col. Forrest L. Holycross, Col. Oness H. Dixon, Jr., Lt. Col. Raymond T. Seymour, Lt. Col. John H. Rust 3d, Lt. Col. H. K. Moore, Col. Louis L. Shook, Col. Gerald W. FitzGerald, and Col. Seth C. Dildine. *Third row:* Col. Allen C. Wight, Lt. Col. Gardiner B. Jones, Col. Frank H. Woodruff, Lt. Col. John Ludwigs, Lt. Col. S. W. Alford, Col. Fred C. Waters, and Col. Frank M. Lee.

The inception of the service command organization in the summer of 1942 brought with it the temporary removal of the ex-corps area surgeon from his staff officer status with respect to the commanding general and his downgrading to the position of "chief of medical branch" under the directorship of the new service command headquarters supply division (*23*). At the same time, the service command veterinarian became a chief of section within the medical branch, although Headquarters, Army Service Forces, did not provide for a veterinary section in the internal organization of that branch. In fact, for some time, the veterinary section of one service command headquarters operated outside the jurisdiction of the medical branch and, in another section, such a separation was discussed. As a further indication of the irregularities brought on by the Headquarters, Army Service Forces, plan for the new service command organization, another headquarters tentatively placed its medical branch under the directorship of personnel rather than under the headquarters supply division. More important, however, was the fact that there was no officially recognized service command veterinarian and that it was not a Medical Department officer (service command surgeon

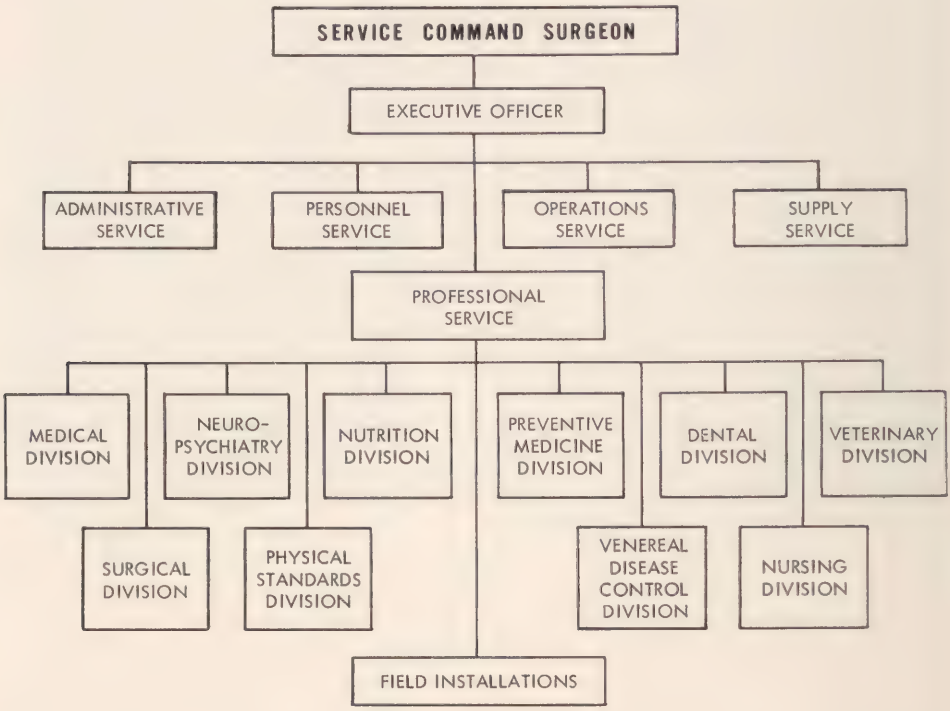
and/or veterinarian) but the headquarters director of supply who was explicitly assigned the staff functions for supervising the service command's veterinary services, including those at the camp or post level.

At first, Headquarters, Army Service Forces, provided for these service command headquarters directors of supply to supervise also the veterinary inspection services at market centers, plants, and depots in connection with procurement of meat and food supplies. This obviously was an error as it tended to completely separate certain food procurement inspection responsibility from The Quartermaster General since all other procurements by him and by the other chiefs of technical supply services were inspected under their supervision or other regulatory control and not by any service command headquarters. In any event, this was soon corrected—as were other mistakes—by Headquarters, Army Service Forces. Thus, in December 1942, a revised manual on the organization of its service commands changed the supervisory activity so that the director of supply in each headquarters was to supervise the veterinary inspection service incident to the service command procurement of meat and food supplies, and, as requested by The Quartermaster General, they were to assist also in inspections incident to other procurement of meat and food supplies. Actually, by this time, The Quartermaster General, through his developing centralized depot procurement system for nonperishable subsistence and the new Quartermaster market center system, was procuring most of the supplies needed by the Army.

Along with this delegation of staff controls over veterinary food inspection activities to the headquarters' directors of supply, the service command veterinarians also lost their staff controls both over veterinary personnel assignment in the service commands and over their training to the new service command headquarters' directors of personnel and directors of training, respectively. In other words, veterinary affairs became a complicated, trifurcated staff problem in the service command headquarters. Actually, the Army Veterinary Service was not the only service affected by the service command organization of 1942 because the same losses of staff representation and their divisions in management control were equally experienced by all technical services. It may be noted, however, that, in at least one service command headquarters, the chief of the veterinary section was subdelegated certain responsibilities to take staff action as an assistant to the local director of supply.

In November-December 1943, after a year and a half of this non-Medical Department headquarters supervision of the Army Veterinary Service within the service commands, Headquarters, Army Service Forces, set up its own organizational chart as a pattern for reorganizing the various service command headquarters. At the same time, the chiefs of the headquarters' medical branches were reinstated as service command surgeons, who as chief representatives of the Medical Department were designated to act as staff officers and advisers to the commanding generals of their service commands.

CHART 2.—*Functional organization of the office of the service command surgeon, winter 1943–44*



In other words, the service command surgeons replaced the headquarters' directors of supply divisions as the responsible supervisors and technical advisors to the commanding generals on Medical Department activities within the service commands. Following a pattern of organization suggested by the Surgeon General's Office, each surgeon's office was then reorganized to include a veterinary division headed by the service command veterinarian (chart 2).

There was no uniformity of internal organization among the veterinary divisions of service command headquarters. Usually they comprised the office of service command veterinarian, one to three veterinary officers as assistants, occasionally, a Medical Administrative Corps officer and civilian clerical employees. In the Seventh Service Command, this divisional organization was subdivided into three branches, each with two to four sections: Administration branch, food inspection and milk sanitation branch, and animal service branch. There were four subsections in the Ninth Service Command headquarters veterinary division: Control (or personnel), professional service, inspection service, and animal service. In other service commands, such as the First, Second, and Eighth, the divisions also included the central offices for service command veterinary units or detachments as were com-

manded by the service command veterinarians. Throughout the war period, the service command veterinarians frequently promulgated letters of instruction or technical directives relating to veterinary matters that were distributed through command channels to the service command veterinary detachments and personnel; in fact, information received from the Surgeon General's Office, either by official correspondence or informally, was coordinated into the service command headquarters procedures and disseminated in this manner by the service command veterinarians.

After November-December 1943, there was little further change in the wartime service command organization relating to the Army Veterinary Service. Then, with the reorganization of the War Department and abolishment of Headquarters, Army Service Forces, that took place, effective on 11 June 1946, the nine service commands were discontinued (*24*). By substituting six army areas for the service commands, the number of service command veterinarians was reduced to six and their names changed to army area veterinarians. The latter were continued in the offices of the new army area surgeons who then, with regard to medical matters, received orders and instructions from the War Department General Staff. They were responsible for the areas' veterinary service except "veterinary services at Quartermaster and general depots charged with supply of food products and veterinary food inspection within the metropolitan areas in which such depots are located" and the "veterinary service at Quartermaster remount depots and remount area headquarters."

Station Veterinary Service

The Army Veterinary Service below the level of service command veterinarians included a varying number of so-called station veterinary detachments, each commanded by the senior Veterinary Corps officer assigned and present for duty. He conducted the station veterinary service under the general supervision of the post, camp, or station surgeon assigned to the class I (or service command-controlled) installation or to the camp or class II installation where Army Ground Forces troops were housed. The Army Veterinary Service with service commands also included the veterinary sections of service command medical laboratories and so-called area or district veterinary detachments. The latter comprised a new type of organization in the service commands and gradually came into existence as actions by Headquarters, Army Service Forces, and service command headquarters in regard to command and personnel controls virtually destroyed many station veterinary detachments. The numbers of Army Service Forces veterinary personnel in the service commands at one time, in December 1944, approximated 650 officers. In the Fourth Service Command, the veterinary officer and enlisted personnel strengths reached wartime peaks of 101 and 306, respectively, by the end of 1943; in the Sixth Service Command, these numbered 99 officers and 213 enlisted personnel as of V–J Day. As of the end of 1944,

both the Second and the Seventh Service Commands veterinary personnel strengths approximated 80 officers and 240 enlisted personnel, each, but the Seventh's continued to increase to 96 veterinary officers and to 260 men by mid-August 1945.

These numbers of personnel were commented upon by the respective command veterinarians as being either adequate or too low for the successful accomplishment of the veterinary mission. Thus, in the Third Service Command—

> Even while at its peak the force was not adequate for the work required. A surplus of inspectors never existed; on the contrary the available force was usually spread so thin that the quality of the inspection service suffered thereby. Excepting sometimes in the case of officers, it was not a problem of being unable to obtain authorization, but rather a problem of obtaining the actual personnel, trained or untrained, from any source. This condition became more critical as the war progressed and physically qualified Veterinary Service Trained enlisted men were withdrawn from our service for assignment to combat units.

This loss of personnel for nonveterinary utilization in the Army Ground Forces comprised a complaint more serious than that which was made by the service command veterinarians earlier when their personnel were being withdrawn for assignment to new stations or the Army Air Forces in the expansion period or for oversea assignment. Needless to say, the losses were tentatively identified with requisition demands for correspondingly larger numbers of limited service and untrained personnel. In the Sixth Service Command—

> The numbers of veterinary personnel available were considered to be no more than adequate at any time, and were occasionally insufficient for the rising scale of wartime duties. * * * It was very difficult at many times during the war period to obtain sufficient veterinary personnel in the Command for accomplishment of inspection responsibilities. The necessary T/O increases and personnel authorizations could be obtained without undue difficulty, but the problem was in filling personnel requisitions in time for the recurrent workload increases. A complicating factor was that veterinary replacement personnel had to be technically qualified, dependable and with initiative, to be of value for the individual type of duties performed. The problem was solved each year by various means, but grave doubt sometimes existed as to whether food inspection requirements could be satisfied.

Another service command veterinarian believed that the personnel shortages were caused by overall headquarters planning which did not project for more than day-to-day operations of the veterinary service and that the additionally required personnel often became available long after the given situation was met by a local reorganization or had long since ceased to exist. In only one service command was the veterinary personnel strength regarded as being so critical that it could not be satisfied, at least temporarily, by readjustments in the deployment of available personnel.

With few exceptions, the veterinary personnel in the service commands were male officers and enlisted men. The Third and Seventh Service Commands, however, each eventually gained one or two assigned Women's Army

Corps officers who were graduate veterinarians and a varying number of enlisted female personnel. Civilian employees were used for clerical purposes in many veterinary offices and as animal caretakers in medical laboratories; the trend toward the substitution of military personnel by civilian employees in veterinary inspection work was enforced upon detachments in three service commands. Actually, qualified or experienced civilian meat inspectors were unavailable, but those who were available could not be utilized under any or all conditions for the irregular and long periods of inspection work normally required of the veterinary enlisted personnel. In the First Service Command, 2 civilian meat inspectors were employed (as of October 1945); in the Third Service Command there were 17 but, as of the end of 1945, only 7 remained.

A varying percentage of the personnel assigned to the service commands were trained in Medical Department schools and courses for officers and in replacement training centers and Medical Department enlisted technicians schools for enlisted personnel. Nearly all service command veterinarians experienced difficulties in the acute lack of any additional personnel to replace those who were temporarily released from their duty assignments for such school training, but at the same time there was every reason for properly training them before their selection for oversea deployment sometime in the future. After September 1943, the service command headquarters, rather than the Surgeon General's Office or War Department, ordered veterinary officers into school training. This school training was implemented by on-the-job training of the personnel at their assigned stations, particularly on those subjects which better qualified them in carrying out the mission of the local station veterinary detachments. Usually no formal schedule for such on-the-job training was prescribed by the service command headquarters, and pertinent directives and publications of a technical nature which were promulgated by the Surgeon General's Office and service command veterinarians most frequently became the source material for conducting this on-the-job training in the station detachments. The equipment and supply for station veterinary detachments among the various service commands were readily obtained and were generally adequate. In at least one service command (the First), however, difficulty was experienced in obtaining suitable clothing for veterinary personnel on duty in cold storage warehouses, and, in others, some shortages in the supply of meat and dairy hygiene inspection equipment, especially thermometers, existed during the early part of the war period.

Station veterinary services were the basic activities of the Army Veterinary Service with service commands in the Zone of Interior, and station veterinary detachments comprised its basic functional organization. These station veterinary services were comparable to the routine, housekeeping-like meat and dairy hygiene and veterinary animal services which were conducted by those detachments assigned to depots and ports, as previously described, and those assigned to bases and airfields which were controlled by the Army Air Forces. These routine services were provided by the Army Service

Forces service command detachments at such installations as replacement training centers, recreational and personnel redistribution centers, convalescent camps and general hospitals, arsenals and motor depots, internment camps, and prisoner-of-war camps, and at the camps where Army Ground Forces units were being trained and prepared for oversea deployment.

Each station veterinary detachment included all officers and enlisted personnel who were assigned for veterinary service at the station and was administered and commanded by the senior veterinary officer, the latter being designated the station veterinarian. The detachment's personnel strength was to be determined by the number of animals at the station, whether a station veterinary hospital was operated, and by the extent of the local meat and dairy hygiene inspections. Control over the discipline, training, equipping, and assigning to duty of the detachment personnel were responsibilities vested in the station veterinarian in his capacity as commanding officer; the station veterinarian also was responsible for the conduct of the local veterinary services and activities, but in this he was supervised by the station surgeon. In fact, so far as staff relations were concerned, the station veterinarian was an assistant to the surgeon who in turn was the representative for the Medical Department on the staff of the commanding officer of the station concerned. Sometimes, by local arrangement, the station veterinarian was directly named to the staff of the station commander, but this was the exception in common station organization.

Unfortunately, the regulatory provisions for station veterinary functional organization were changed by Headquarters, Army Service Forces, which through a series of staff actions virtually destroyed station veterinary detachments. For example, all station Medical Department functions were fully subordinated to local commanders without channels of communications for referring professional or technical matters to senior Medical Department officers who now had been removed from their staff officer capacity in all service command headquarters, as previously noted. In another, but less successful, staff action, Headquarters, Army Service Forces, attempted a station reorganization which would have placed all Medical Department activities under the supervision of station supply officers and responsibility for duty assignments of Medical Department personnel under the local station personnel officers—a situation which paralleled the service command headquarters organization of 1942–43. Of course, the latter reorganization plan was not forcibly effected, and, throughout the war period, the station surgeons continued to represent Medical Department affairs direct to their station commanders. However, the latter were guided in their command responsibility over the local station veterinary services by the director of supply of the immediate service command headquarters or by that headquarters' personnel division, until November-December 1943, when service command surgeons (and veterinarians) regained their staff officer status.

In another staff action, in mid-1943, Headquarters, Army Service Forces, changed the procedures which were being used by the service commands in allocating space authorizations for personnel at the stations. Thus, the service command headquarters were authorized to consolidate the existent personnel space authorizations for medical, dental, veterinary, and all other station service complements into a single bulk allotment for the station concerned; furthermore, the authorizations for veterinary personnel were "bulked" with the total Medical Department personnel authorizations. Now, station veterinary detachments were discontinued and merged with the station medical detachment, and veterinary personnel lost their identity. Between the station commander and the station surgeon, who now assumed command over the veterinary detachments, trained veterinary enlisted personnel were transferred, utilized in nonveterinary duties, particularly in the station hospitals, and often had little chance of promotion. This had a very deterrent effect on morale and efficiency of station veterinary detachments, and equally important was the fact that service command veterinarians lost all accounting of the availability and capabilities of each station detachment to participate in the Army Veterinary Service functions of the concerned service commands as a whole (*25* through *30*). By the end of 1944, this situation had become progressively worse as more and more physically qualified personnel were withdrawn for oversea deployment, and the stations, encountering shortages in numbers of personnel, restricted their personnel to carrying out only the station's immediate missions and functions. Veterinary detachments which were conducting off-station food inspection services in commercial food establishments were cut back by local authority. Not the least concerned in this last action were the service command headquarters control divisions.

Although it would seem that the status of the Army Veterinary Service at the station level was markedly reduced, there were saving provisions for its continuance and for centralized supervision by the service command veterinarian on a command-wide basis. One such provision was that veterinary personnel were designated in a critical occupational specialty for which trained replacements had to be available before they could be transferred from their assigned stations. Another was, as previously noted, the independent actions on the part of one or more service command headquarters to continue the service command veterinarian as a staff officer to supervise the veterinary activities and personnel in the command, even though Headquarters, Army Service Forces, had specifically advised against such functional organization in the service commands. Also, in many service commands, with the assistance of the headquarters control divisions which earlier had been active in reducing station veterinary detachments, separate veterinary detachments were organized to conduct all off-station veterinary services within a specified geographic area. This latter development, which gave origin to area or district veterinary detachments, together with the service

command headquarters reorganization of November-December 1943 which reinstated the service command veterinarians, actually accounted for continued effectiveness and efficiency of the Army Veterinary Service with the service commands, though station veterinary detachments were now virtually ineffective. The status and developments among the various service commands regarding station veterinary service are described in later paragraphs. The developments were contingent on the gradual restriction of station veterinary detachments to duty on the post or camp proper and the emergence of new area or district detachments which took over all off-station duties, particularly the inspections of meat and dairy products at contractors' plants, commercial warehouses, and shipping points in specified areas.

In the First Service Command, station veterinary service was conducted at a dozen or more class I and class II installations, including that at two distributions centers (at Hartford, Conn., or the Willimantic Distribution Center, and at Medford, Mass.). Beginning in 1943, these station veterinary detachments were reduced in their personnel strengths, and their off-station activities at commercial food establishments which were supplying the Armed Forces were transferred to the inspection responsibility of a single service command veterinary unit; namely, Service Command Unit 1100 (or Service Command Unit 1135) as it was called before its redesignation, in February 1945, First Service Command Veterinary Service at Large. It was organized during November 1942, first with veterinary officers and, after May 1943, also with veterinary enlisted personnel—the latter being formerly assigned to a general dispensary organization. Under the command of the service command veterinarian, Service Command Unit 1100, First Service Command Veterinary Service at Large, reached a peak strength of 17 officers and 39 enlisted personnel and 2 civilian inspector employees. Their activities approximated two-thirds of the total quantities of foods inspected in the service command during the first 6 months of 1945. This unit's inspections in Boston were assumed by the Boston Quartermaster Depot in the fall of 1943, but, by the end of 1944, it had taken over inspection responsibilities in most areas previously serviced by station and airbase veterinary detachments and in parts of Connecticut and Massachusetts that once were serviced by veterinary personnel assigned to the two distribution centers. At various times, suboffices or substations of the unit were established, such as at Hartford and New Haven in Connecticut; Gloucester, New Bedford, Springfield, and Worcester in Massachusetts; Manchester in New Hampshire, and at Portland, Maine.

In the Second Service Command, station veterinary detachments were kept intact for the greater part of the war period. Some few stations were expanded to satisfy the veterinary food inspection needs at procurement and storage points in towns and cities near them, such as Fort Totten, N.Y., whose veterinary detachment inspected in the Poughkeepsie-Kingston-Chester area, and as Pine Camp, N.Y., whose detachment inspected in the nearby

cheese centers. Later, however, the origin inspections of foods in areas outside of routine traveling distance from the stations were conducted by newly organized district detachments. Thus, the inspection services, which were begun in Newark, N.J. (at an issue commissary installation, in May 1943), in Syracuse, N.Y. (in March 1944), and in Buffalo, N.Y. (in 1941), were later reorganized as veterinary detachments of districts 1, 3, and 4, respectively, and assumed the inspection responsibility for origin inspections of foods over relatively large areas. Then, on 4 June 1945, all station and other veterinary detachments lost their area inspection responsibilities to the 1217th Service Command Unit, Veterinary Inspection Unit, which was then created with 28 officers and 100 enlisted personnel under the command of the service command veterinarian. This last action with respect to the removal of area food inspection responsibility from station veterinary detachments in the Second Service Command essentially paralleled that of the First Service Command; the same occurred, as will be observed, in varying degrees in many other service commands (except in the Third, Fourth, and Fifth).

In the Third Service Command, veterinary services were expanded from four permanent posts as of the start of the emergency periods to as many as 24 class I and class II installations during the war period. As of V–J Day, veterinary officers of the command were assigned to 17 installations, rendering service to 5 others on an attending basis and supervising origin food inspections at a multitude of places away from their assigned stations. Thus, the end of war saw inspection responsibilities in food establishments, commercial warehouses, and shipping points assigned to many station veterinary detachments—there being no tendency to transfer these responsibilities into a single detachment such as had occurred in the First and Second Service Commands. In fact, at this time, eight or nine such detachments were rendering inspection services at more than 20 towns and cities in the vicinity of their respective stations. However, there was one service command unit, the 1300th Service Command Unit, with station in Baltimore, Md., a parent unit of which had been organized before 1939, and the detachments of three railhead facilities, which were organized in the spring-summer of 1942, at Philadelphia and Pittsburgh, Pa., and Richmond, Va., that conducted origin inspections more or less on an area basis; as of mid-1945, these four detachments were inspecting in approximately 50 towns and cities and were doing more than 95 percent of the total food inspections in contractors' plants in the service command, equaling 100 million pounds of meat and dairy products each month.

In the Fourth Service Command, the number of station veterinary detachments increased from 25 during the prewar emergency periods to more than 40 before the end of hostilities. As in the Third Service Command, there was no trend toward the centralization of off-station activities into one or more service command or district detachments. Throughout the war period, nearly all of the veterinary detachments maintained inspection respon-

sibility for the foods which were processed, stored, or otherwise handled in their localities. As of V–J Day, 19 veterinary station detachments were providing 35 officers and 57 enlisted personnel on detached service in 25 towns and cities. Similarly, there was no major centralization of origin inspections in the Fifth Service Command, where the increased veterinary food inspection activities at contractors' plants, commercial storage warehouses, and shipping points were satisfied by the enlargement of certain station detachments (such as at Camp Breckinridge, Ky.; Fort Benjamin Harrison, Ind.; Camp Perry, Ohio; and Fort Thomas, Ky., or later, at Fort Hayes, Ohio). These located their personnel in about 15 large towns and cities on full-duty status.

In the Sixth Service Command, station veterinary detachments were at first fully developed. Many, such as those at Forts Brady, Custer, and Wayne and Camp McCoy in Michigan and Fort Sheridan and Camps Ellis and Grant in Illinois, assumed inspection responsibilities on the perishable meat and dairy products which were procured in their respective areas. Then, during September 1943, the off-station duties of many of the detachments were wholly or partially transferred from them to the jurisdiction of three newly organized veterinary food inspection service sections, each being assigned to a district subcommand headquarters: Detroit, Mich. (or district 1), Milwaukee, Wis. (or district 2), and Chicago, Ill. (or district 3). These sections, later designated and reorganized as the 1697th, 1698th, and 1699th Service Command Units, Veterinary Food Inspection Service, respectively, established area offices in 14 towns and cities from which veterinary personnel were detailed to inspection duties in contractors' plants, commercial warehouses, and shipping points. The area offices were established in the Michigan district at Alma, Detroit, and Grand Rapids; in the Wisconsin district, at Green Bay, La Crosse, Madison, Marshfield, Menomonie, Milwaukee, and Plymouth; and in the Illinois district, at East St. Louis, Freesport, and Hoopeston, and also at Gary, Ind. As of December 1943, the three district detachments, as well as a few station veterinary detachments of stations, airbases, and other installations (which continued off-station activities until September of the next year), were inspecting the output from more than 200 contractors of meat, poultry, eggs, butter, cheese, fish, powdered milk, evaporated and other milk products for the Armed Forces. The Sixth Service Command district organization was as extreme in the reduction of station veterinary activities as were the First and Second Service Commands, but the latter had centralized their off-station activities in single service command units, whereas the former decentralized these among three district veterinary food inspection organizations. However, soon after the cessation of active hostilities, the district commands were discontinued so that, by November 1945, the district veterinary organizations were also inactivated and their personnel, without change of place of duty assignments and their areas of inspection responsibility, were transferred to the newly reorganized 1699th

Service Command Unit—Veterinary Food Inspection Service, with central office location in Chicago. In other words, the last reorganization resulted in a formation of a detachment that was no different than Service Command Unit 1100, First Service Command Veterinary Service at Large, or the Second Service Command's 1217th Service Command Unit, Veterinary Inspection Unit.

The Seventh Service Command station veterinary detachments were numerically increased from 8 in 1940 to 12 as of August 1945, but this last number does not include general hospital installations and prisoner-of-war camps to which veterinary personnel were assigned or had only veterinary enlisted personnel. Most of the station veterinary detachments eventually were limited to the conduct of on-station duties, such as occurred in the Sixth Service Command, and to all off-station activities that were being centralized under control of three or four station veterinary detachments in one or more States. However, these veterinary detachments were not assigned by district commands; instead, as in the Fifth Service Command, certain station detachments were specially developed and given area-wide responsibilities. Thus, the Veterinary Food Inspection Detachment, 1745th Service Command Unit, Fort Omaha, Nebr., performed inspections throughout Colorado, Kansas, Missouri, and eastern Nebraska, as well as in the cities of Sioux City, Iowa, and Sioux Falls, S. Dak.; the Medical Department Detachment (Veterinary Service) of the Station Complement, 1775th Service Command Unit, at Fort Snelling, Minn., operated in Minnesota, North Dakota, and South Dakota; and the Veterinary Section of the Headquarters Detachment, Station Complement, 1798th Service Command Unit, at Fort Des Moines, Iowa, inspected in Iowa. A fourth veterinary food inspection detachment with station at Fort Warren, Wyo., assumed control over origin inspections in western Nebraska and Wyoming.

The Eighth Service Command effected no great change in the status of its station veterinary detachments and, in fact, continued to enlarge them in order to perform off-station services in their immediate areas. One service command veterinary unit, the 1875th Field Service Unit, was established, however, as a part of the service command headquarters, but it was limited to the conduct of food inspection services at procurement areas which were too far distant from the existing detachments.

In the Ninth Service Command, as of October 1944, veterinary personnel were assigned to 30 service command installations including 17 camps, 7 general and convalescent hospitals, 2 prisoner-of-war camps, a redistribution center, and 3 service command veterinary units. For the most part, the station veterinary detachments were kept intact or were enlarged in order to conduct off-station food inspections in their immediate areas; in fact, a few of them at one time were referred to as area veterinary detachments. However, only four true area detachments were ordered into organization as autonomous units with assignment to the cities of Los Angeles, Calif. (in

1939), Phoenix, Ariz. (in March 1941), Salt Lake City (in July 1941), and Spokane, Wash. (in November 1941). While each assumed inspection responsibility in contractors' plants, commercial warehouses, and shipping points in its respective city, the area detachments also established subsistence inspection services in a large number of towns and cities such as were not adjacent to stations and airbases in the service command. These area detachments of the Ninth Service Command were not limited in their activities as were the service command, district, and area food inspection detachments of other service commands, because they also performed a variety of duties including veterinary animal service to installations and facilities in their areas. Beyond these area detachments there was no tendency to centralize food procurement inspection activities.

These area, district, and single service command veterinary detachments seemed to satisfy the needs of the concerned service command veterinarians. Their advantages were that administration was simplified in regard to training, selecting, and specially instructing the personnel who were permanently assigned to off-station duty, that morale and efficiency was maintained by proper promotion and by nonuse in other than the duties for which they had been trained, and that technical matters relating to the administration of Quartermaster contracts for subsistence were readily coordinated and made uniform throughout the service command area.

There were a number of service command controlled installations, other than Army camps, which were provided with meat and dairy hygiene and veterinary animal services. Included in this group were the named general hospitals, regional hospitals, convalescent hospitals, and hospital centers. A number of these were serviced by the local station veterinary detachment just as were other facilities located at that camp. Where a hospital was a completely separate installation, such as a general hospital, its veterinary service was provided either on an attending basis by an existing detachment from a nearby camp or by veterinary personnel assigned to it. By the end of the war, approximately one-half of these hospital installations had their own organically assigned veterinary detachments or personnel.

At these hospital installations, the veterinary detachments inspected the food supplies which were received for use in the hospitals and, in particular, surveyed the local dairy industries that were supplying fresh milk. Later, with the increased emphasis on programs for the rehabilitation and recreation of convalescents, Army horses were issued to many hospitals, and these veterinary detachments also provided veterinary animal services—in several instances, actually managing or supervising the hospital stables. A few hospitals also operated vegetable gardens, and at least one (Stark General Hospital) also established a poultry farm which came under the management of the hospital veterinarian. Elsewhere, these veterinary detachments managed the local laboratory animal colonies for hospital clinicodiagnostic laboratories and inspected the messhalls and the kitchen compartments on hospital

railroad cars. Aside from the purely, on-station veterinary activities, the hospital veterinary detachments were often designated by service command veterinarians to assume inspectional responsibilities in nearby cities and towns in the same manner that other class I station detachments assigned such responsibilities. This was particularly true in the Third, Fourth, Eighth, and Ninth Service Commands; in fact, in the Ninth, the Barnes General Hospital veterinary detachment purposely reached a strength of 8 officers, 26 enlisted personnel, and 4 clerical employees (as of the fall of 1944). It is a matter of record that, until 1945, veterinary personnel were excluded from tables for the organization of general or other so-called fixed hospitals in the Zone of Interior; in the summer and fall of that year, presumably reflecting on the studies of hospital organization that were made during the earlier war years, Headquarters, Army Service Forces, and the War Department in manuals and other directives concerning hospital organization provided for a Veterinary Corps officer on the administrative staff of the commanders of named general hospital centers when operating as independent installations.

In the category of specialized service command-controlled installations, there were also the Army Ground and Service Forces distribution stations where soldiers were provided recreational leave pending their reassignment or redeployment overseas for a second time. Then also, there were the War Relocation Authority camps for interned Japanese, the many prisoner-of-war camps, and a few Army disciplinary barracks. Infrequently, these camps had mounted horse patrols, Army guard dog detachments, and sometimes their own vegetable gardens or hog farms. Usually, such installations were provided veterinary food inspection and animal services on part-time basis by Veterinary Corps officers designated as attending veterinarians from nearby Army camps.

Veterinary Animal Service

Of the three major activities of the Army Veterinary Service in the service commands—veterinary animal service, military meat and dairy hygiene service, and veterinary laboratory service and research—the second was by far the most extensive, and it together with the last-named activity was the most important during World War II. Veterinary animal service at station level in the service commands, though generally greater than in the peacetime years immediately preceding the war period, reached a maximum in 1940–42, and after that time progressively decreased (fig. 16). There were no auxiliary remount depots in the stations or camps such as had developed in World War I; now, motor pools provided the camp transportation facilities, and ground combat units were, with few exceptions, motorized and mechanized. By the end of the war, only Fort Riley, Kans., and Camp Carson, Colo., which were Army Ground Forces centers for training Cavalry and Mountain Warfare units, had any great numbers of animals; elsewhere, only small groups of horses and mules were being utilized such as at the



FIGURE 16.—Post stables, Fort Douglas, Utah.

Army Service Forces installations concerned with hospital patient convalescence, rehabilitation and recreational projects, in rest camps, sometimes for drayage to conserve motor gasoline, and in ordnance depots and prisoner-of-war camps for guard patrol purposes. Many of the animals at the stations, as they became surplus to military needs during the war, were sold at public auction by U.S. Treasury Department officials; others were returned to the Quartermaster remount depots.

Station veterinary detachments experienced no major problems in the care of Army horses and mules. Stabling was generally adequate at the larger, permanent installations; elsewhere, temporary or makeshift facilities were provided, but generally even these proved to be adequate. Almost the same situation existed in regard to station veterinary hospitals. Feeds and forage for the animals were generally obtained through regular quartermaster channels of supply, these products being inspected by Veterinary Corps officers at the time of their procurement. The quantities of grains and hay inspected varied among the service commands and gradually decreased, along with the reduction in animal strength, as the war progressed. Diseases occurring more frequently in the camp animals included equine influenza and the related shipping-fever types of diseases, and ringworm. Both became commonplace, during the early war years, when the Army was handling large numbers of newly procured remounts and before an energetic

program was undertaken for dipping animals before their issue from Quartermaster remount depots. Also, a vesicular stomatitis enzootic was experienced at stations and maneuver areas in southwestern United States in 1941 and 1942. Periodic mallein testing for glanders and the annual programs of immunization against equine encephalomyelitis and tetanus proved to be completely successful. Animals used in civilian educational institutions having Reserve Officers' Training Corps units also were attended by veterinary officers.

Station veterinary service with animals usually meant the professional care and management only of Army horses and mules, but, during World War II, for the first time, the Army dog and signal pigeon were added to the general definition of Army animals such as would be routinely cared for by the Army Veterinary Service. This station service with Army dogs paralleled that with horses and mules; including the conduct of quarantines, physical examinations; immunization programs to prevent or control infectious diseases (such as canine distemper, rabies, leptospirosis, canine dirofilariasis); veterinary sanitation and hygiene; and the care, treatment, and hospitalization of the sick and injured dogs. For the most part, veterinary hospital facilities and supplies, already available at many stations and being used in connection with Army horses and mules, were modified as required; elsewhere, small veterinary hospitals with kennels were constructed or improvised. In some service commands, the Army dog population among the stations totaled as many as 260 to 600 (in the Second and the First Service Commands, respectively), but others had considerably smaller numbers; only a few of these dogs died or were destroyed on account of disease or injury while assigned to the stations. In regard to veterinary service with signal pigeons, one large loft with approximately 3,000 birds was located at Fort Benning, Ga. (in the Fourth Service Command). Of course, there was also the Signal Corps pigeon breeding and training center at Fort Monmouth, N.J. (in the Second Service Command), later removed to Camp Crowder, Mo. (in the Seventh Service Command), where Veterinary Corps officers were assigned. In the First and Sixth Service Commands, pigeons were located at a number of airbases and fields. However, by the end of 1944, many Army animals—horses, mules, dogs, and pigeons—had been disposed of by return to depots and centers, so that the end of the war found veterinary service with animals at station levels in the service commands to have virtually disappeared.

The Army Veterinary Service with the First, Second, Third, Fourth, Eighth, and Ninth Service Commands provided professional care and treatment to approximately 1,500 horses which, pursuant to the agreement reached during September 1942 between the Secretary of War and the Secretary of the Navy, were loaned by the Army to mount U.S. Coast Guard beach patrols (*31, 32, 33*). Sometimes, Veterinary Corps officers were assigned full-time duty to the concerned Navy district headquarters but, in other

service commands, the Coast Guard patrol station commanders utilized the services of nearby station veterinarians. The animals of Coast Guard dog patrols also were cared for by the Army Veterinary Service; however, dogs were not a part of the interservice agreement, so that the required veterinary supplies were obtained, not through Army Medical Department supply channels, but by requisition on the U.S. Coast Guard. The station veterinarian, Fort Belvoir, Va., in the Military District of Washington, pursuant to periodically renewed agreements, since 1929, between the Secretaries of War and Navy, continued during the war to attend the animals which were maintained by the U.S. Marine Corps at Quantico, Va.; after September 1944, the horses belonging to the U.S. Marine Corps at Camp Crane, Ind., also came under the supervision of a Veterinary Corps officer. Another, but unofficial, veterinary animal services activity was the professional care and treatment of dogs, cats, and other pet animals belonging to military organizations or privately owned by military personnel. For the most part, this professional activity in Army camps was kept minimal, consistent with the requirements of concerned station commanders and the capabilities of station veterinarians to conduct it with the personnel already available; that is, no veterinary officers were specifically assigned to stations for full-time, official duty to conduct a veterinary practice on nonmilitary animals. In regard to these animals, however, station veterinarians, under supervision of the station surgeons, inaugurated programs for immunizing dogs and other pet animals against rabies and cooperated with local provost marshals in freeing Army camps of stray animals.

Veterinary Food Inspection Service

The veterinary meat and dairy hygiene services among the service commands were quite variable. Some services were concerned largely with food procurement inspections (such as the Sixth and Seventh), others with the surveillance inspections of products which were being moved to the ports of embarkation for oversea shipment (such as the First and Second), while others were areas for the concentration of troops in training and thus were consumer areas (such as the Fourth and Eighth).

At the start of the emergency periods, all station veterinary detachments were concerned with the inspections of meat and dairy products which were procured, received, and issued by the local Quartermaster officers. Occasionally, off-station veterinary inspections were made of fresh meat and some chicken or turkey, and, at least once each month, the veterinary officers inspected the local dairies and ice cream plants which were supplying the camps. Even less frequently—but after many endorsements on a basic communication (that is, "redtape")—so-called courtesy inspections were conducted by a few station veterinary detachments in contractors' plants of the meat and dairy products which were being processed for delivery to one or more far-distant camps, to a maneuver area, or to an oversea department.

Later, during the emergency periods, the veterinary meat and dairy hygiene inspection services at station levels were reorganized, and station veterinary detachments, which up to this time had so infrequently conducted courtesy inspections of products for delivery to far-distant points, were then requested by Army purchasing officers to perform inspections at commercial food establishments in nearby cities and towns almost continuously. This change-over took place concurrent with the centralization of procurement of nonperishable subsistence in several Quartermaster depots and with the establishment of the Quartermaster market center system of perishable subsistence supply. These new Quartermaster procedures for subsistence supply also saw the lessened activity of local Quartermaster or supply officers in procuring foods for Army camps because the latter were supplied from depots or Quartermaster market center distribution points. The station veterinary detachments, although continuing to perform surveillance or sanitary inspections of the foods received and used within their camps, soon found that the major part of their workload was not in the camps but off of the station or in an adjacent city or town. There, among other military activities, they conducted inspections on meat and dairy products during manufacture in commercial food establishments to determine compliance of the products with the sanitary or grade qualities, such as were specified in Army contractual documents, and conducted surveillance inspections of foods received, stored, transshipped, or otherwise handled at commercial cold storage plants, warehouses, and shipping points.

In connection with these off-station veterinary meat and dairy hygiene services by the station veterinary detachments, it may be noted that, in the early months of 1941, the Secretary of War authorized procuring depots to call on service commands (then designated corps areas) to issue temporary duty travel orders for their station veterinary detachments to inspect nonperishable products in contractors' establishments. Later, on 17 October 1941, a similar authorization was set up with regard to the inspection of perishable foods being procured by Quartermaster market centers. As the war progressed, the depot and market center demands on station veterinary detachments soon became overwhelmingly large; in fact, service command veterinarians, in order to relieve their workloads, frequently called on the Army Air Forces veterinary detachments to perform the required inspections, particularly, if the latter were located near a procurement point. Unfortunately, the service command-controlled veterinary inspections extended into geographic areas where depot veterinary detachments also were conducting origin inspections because the latter were granted inspection responsibilities over both perishable and nonperishable subsistence procurements in nearby cities and towns that were not unlike those assigned to the service commands. This situation became acute in a few of the larger metropolitan areas contiguous to Quartermaster depots and sections of Army Service Forces depots but, in some service command areas, no such overlap or duplication of effort

occurred because the concerned service command veterinarians either had restricted depot veterinary detachments to on-depot activities only or had encouraged the depot veterinary detachment to assume inspectional responsibility over a prescribed geographic area. Thus, in the fall of 1943, Headquarters, Army Service Forces, on request by the Surgeon General's Office, which had investigated the developing service command depot controversy in the metropolitan areas and had obtained concurring approval from the Office of the Quartermaster General, directed the assignment of veterinary food inspection responsibility throughout the Zone of Interior to the service commands, with the exception of those metropolitan areas that were contiguous to Quartermaster depots and sections of Army Service Forces depots where the depot veterinary detachment would conduct the inspections. The outcome of this directive was that some service commands gained personnel by transfer from depots located in their areas, and, in other service commands, just the reverse occurred. Actually, many service command veterinarians were of the opinion that the depot-assigned veterinary detachments were conducting a large percentage of the meat and dairy hygiene inspection workload within their geographic boundaries (in metropolitan areas over which they had no formal jurisdiction or technical control); in practice, the depot veterinary detachments generally coordinated their operations with those established for and used by the service command-controlled veterinary detachments. There was no change in this division of responsibility for meat and dairy hygiene inspection services in the service command areas for the remainder of the war period.

Concurrent with the origin inspections of food products, sanitary inspections were conducted in the food establishments or contractors' plants and commercial warehouses where these products were manufactured, processed, stored, and handled for Army procurement and distribution. However, abbatoirs and meat establishments which operated under the supervision of the Bureau of Animal Industry, U.S. Department of Agriculture, were exempted from Army veterinary sanitary inspections, as were any establishments that were inspected by recognized agencies which enforced sanitary standards equal to or above those of the Army. At the beginning of the war period, each Army veterinary detachment was conducting initial sanitary inspections of those establishments and dairies (and then at intervals of at least once a month) that were involved in the local meat and milk supply to the post, camp, or station concerned. Then gradually, with the developing system of regional and centralized procurement by market centers and depots, these veterinary sanitary inspections at the local level were newly coordinated on a service command-wide basis, and service command lists of approved establishments were promulgated. These lists were furnished to the buyers in market centers and depots as well as to the Army Exchange Service and other military procurement agencies. Routinely, the latter restricted their procurements from the establishments named in these

lists. Owners of establishments not so listed, but desirous of becoming Army approved, were requested to submit requests for veterinary sanitary inspections direct to the procurement agencies which, in turn, endorsed the request to the service command headquarters where the service command veterinarian made the necessary arrangements for the sanitary inspection to be made by a veterinary officer at station in the immediate locality of the establishment. The results of the initial inspection and of subsequent monthly inspections of so-called approved establishments were continually summarized by the service command headquarters in officially changed lists of approved establishments.

The veterinary lists of approved food establishments included all processing plants, cold storage warehouses, and commercial distribution points located in the geographic area of the concerned service command—naming not only those under the inspectional jurisdiction of Army Service Forces station veterinary detachments but also those inspected by depot veterinary detachments and Army Air Forces base veterinary detachments. There is no information to indicate whether a format was prescribed during the war period for obtaining uniformity in the lasting of approved establishments by the nine service commands. Apparently, no uniformity was obtained, because in the list of one service command, the establishments were itemized by State, together with the city or town of location and the types of products for which approved. Another service command list contained an itemization of the food establishments according to the type of food product for which approved, together with the city of location and the specific veterinary detachment (station, area, depot, or airbase) which was responsible for performing inspections in the plant. In a manner, the lists of approved establishments were closely identified with lists of location of veterinary inspection stations, and, thus, each establishment or town was assigned the inspection responsibility of a certain detachment without chance of duplication of effort and overlapping of jurisdictional boundaries among the stations, depots, and airbases.

Aside from the inspection of foods procured and distributed to the Armed Forces, the Army Veterinary Service in the service commands inspected for nonmilitary Federal agencies and other agencies, when so requested and particularly when it had a bearing on the sanitary condition of foods supplied directly or indirectly to military personnel. A few such agencies were the Civilian Conservation Corps, War Relocation Authority, War Shipping Administration, Panama Railroad Company, British Ministry of War Transport, Veterans' Administration facilities, and military programs for feeding civilian population in liberated and occupied countries. At many Army camps, pursuant to authorization by local commanders, or on request of camp Quartermaster officers, veterinary personnel also conducted sanitary surveillance inspections of the fruits, vegetables, and other non-animal-origin foods that were received and issued at the camps.

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CHAPTER VIII

Functional Organization in Theater and Minor Commands

At the beginning of the war period, the oversea organization of the Army Veterinary Service was divided between the four oversea departments: Hawaiian, Panama Canal, and Philippine Departments, and the new Puerto Rican Department which was established on 1 July 1939. Each department's headquarters staff included a department surgeon with a veterinary officer as an assistant (that is, the department veterinarian) to supervise the veterinary affairs within the territorial or departmental area. The duties of these department veterinarians generally paralleled those prescribed for corps area veterinarians in the Zone of Interior. Below the level of the headquarters, veterinary personnel generally were assigned to various provisional veterinary general and station hospital organizations which were located at the larger installations, and infrequently a few personnel were assigned to a tactical unit. There was no sharp line of demarcation between the departmental air, ground, and service forces such as made its appearance in the war period, and a unified veterinary service organization under the technical supervision of the single department veterinarian satisfied all Army requirements.

In 1939–40, the oversea veterinary strength totaled 17 to 19 officers; during World War II, 700 Veterinary Corps officers were distributed among at least 23 theater commands. The more important of these commands were as follows:

Minor commands and American theater:
- Caribbean Defense Command
  - Panama Canal Department
  - Antilles Department (superseding Puerto Rican Department)
- Bermuda Base Command
- Newfoundland Base Command
- Greenland Base Command
- Iceland Base Command
- Northwest Service Command
- Alaskan Department
- U.S. Army Forces, South Atlantic

Middle East, Mediterranean, and European theaters:
- U.S. Army Forces, Africa-Middle East theater
  - U.S. Army Forces in the Middle East
  - U.S. Army Forces in Central Africa
- Mediterranean (formerly North African) Theater of Operations, U.S. Army
- European Theater of Operations, U.S. Army

Pacific-Asiatic theaters:
- U.S. Army Forces, Pacific Ocean Areas
  - U.S. Army Forces in Central Pacific Area (superseding Hawiian Department)
  - U.S. Army Forces in South Pacific Area
- U.S. Army Forces in the Far East (superseding Philippine Department)
  - U.S. Army Forces, Services of Supply, Southwest Pacific Area
- U.S. Army Forces, China-Burma-India, predecessor to—
  - U.S. Forces, India-Burma Theater
  - U.S. Forces, China Theater

Technically, there is no definition of a theater command that would allow for the proper listing of all for the war period, because there were some, such as the U.S. Army Forces in Liberia and the many task forces which were sent to the South Pacific Area, that originated as separate War Department-controlled commands. Eventually, many of these were merged or relegated to control by a larger theater command.

One of the reasons for this grouping of the theater commands into three major groups was that it simplified the description of veterinary functional organization by geographic area. However, beyond this, there can be no simple description of a theater's veterinary service for the war period that would be descriptive for all or most of the oversea command. Because each was developed separately, rapidly, and concurrently, none followed any particular organizational pattern. In fact, the historical record of oversea veterinary functional organization, its development, and its accomplishments comprises an individual study for each theater command. There was no typical theater veterinary service organization. The absence of a theater veterinary organization plan may be explained in a number of ways; there was the general concept in peacetime planning for a single theater of operations such as existed with the American Expeditionary Forces in France during World War I. Also, there was the single General Headquarters (GHQ) about which the War Department had been centering its attention since the early 1930's, and it was not until 1941 that, for the first time, there was some real indication that perhaps the single theater plan would not be followed. In that year, U.S. Army Forces in the Far East and U.S. Army Forces in Iceland were created as theater-like commands. These generally followed the appearance of semitactical base commands and defense commands that were established in and surrounding the United States and the Western Hemisphere.

Another significant factor responsible for failure to properly forecast theater requirements for an adequate veterinary service originated with a fundamental concept that veterinary personnel were to be attached to units (in field service) whose animal strength was sufficient to justify their employment (*1*). This was set forth even in the latest wartime manuals on Medical Department doctrine, though animal strength had long been argued by the Veterinary Division, Surgeon General's Office, as comprising an inadequate basis for determining veterinary personnel requirements. Further-

more, there had been prescribed or recognized since World War I, the duality of the mission of the Army Veterinary Service to care for sick and wounded animals and to inspect foods. However, despite this, primary emphasis was placed on the evolution of a theater veterinary organization, made up of detachments and units that would operate a system of animal evacuation and veterinary hospitalization; in the years just before Pearl Harbor, these detachments and units were only slightly modified to include provisions for the operation of meat and dairy hygiene services. Undoubtedly, the very sudden mechanization and motorization of the Army that took place in 1940–41 saw the nonactivation or conversion of detachments and units that were identified primarily for veterinary animal service and thus the complete loss of personnel and units who could otherwise have been diverted from animal service to veterinary food inspection within the theater commands. The scarcity of veterinary personnel in the opening days of several theater commands was amplified by the fact that overall logistic planning had given no indication that the Army overseas would be rationed or subsisted by Allied governments from local resources to the extent that it was and that programs of military meat and dairy hygiene would have to be set up in such places as India, China, Australia, New Zealand, South and Central America, and on the African Continent.

Of course, there were many other factors that would account for the varied developments of the Army Veterinary Service among the wartime theater commands. For example, as in the Zone of Interior, there were three separate Army entities: Air Forces, Ground Forces, and Service Forces. The theaters' air forces—particularly the very heavy, long-range, or strategic bombing commands and the Air Transport Command—usually exempted themselves from jurisdiction of the theaters as being War Department or global commands; these had their own assigned veterinary personnel. Then, too, in most major theaters, the Army ground combat forces with their veterinary service organization came under the operational control of an Allied command or a joint Army-Navy headquarters, and it was unreasonable for the U.S. Army theater command to exert any real effective administrative control over matters such as veterinary affairs in the U.S. Army field armies and other tactical forces that were part of such a senior Allied or joint command. Of course, such senior commands frequently had but little concept of military veterinary medicine. Another factor was that the Army theater commands showed an overwhelming tendency to subordinate the nominal chief or theater veterinarian to the theater's services of supply headquarters organization—a status comparable to that set forth in the War Department reorganization of 1942, which had reduced the standing of The Surgeon General and his chief of Veterinary Corps under the jurisdiction of Headquarters, Army Services of Supply. That this was improper was clearly seen in the actions or reorganizations during the last year of the war

period when most oversea commands restored the position of chief veterinarian to the respective theater headquarters' medical section.

VETERINARY SERVICE OF FIELD UNITS

Preliminary to the description of the veterinary service organization in theater commands, an understanding of the various types of military organizations or units is necessary. Units, as the term is used here, refer to standard military formations which were manned and equipped in conformity with War Department T/O&E's (tables of organization and equipment). Each T/O unit was periodically reviewed by the Veterinary Division, Surgeon General's Office, as to its composition, equipment, and mission, as described in the pertinent T/O&E's, particularly if such table provided for, or should have included provisions for, veterinary personnel. Also, the Veterinary Division, Surgeon General's Office, sometimes following a suggestion of the Medical Field Service School at Carlisle Barracks, Pa., or of a theater veterinarian, initiated procedures for War Department approval of tables for new types of veterinary units. In contrast to the units, there were the various military organizations or provisional organizations which were developed locally within the theater commands to satisfy temporary needs. Theater headquarters staffs and base command headquarters were the more common examples of such military organizations, but sometimes a T/O unit-like organization was improvised locally. The number and size of provisional organizations was limited only by the personnel space vacancies (so-called overhead allotment) granted by the War Department to each theater command. There was no central veterinary control from the Surgeon General's Office over what share of the overhead allotment, or grades, should be set aside for veterinary personnel, and each theater commander retained a perogative to indicate, or change, such of the allotment as pertained to the theater's veterinary service. The importance of this is indicated by the fact that personnel space authorizations and grades for veterinary officers in the theater headquarters staff were part of this theater overhead allotment, and the Surgeon General's Office had no regulatory or administrative control over theater commanders or theater surgeons to sponsor a theater veterinarian in the grade of colonel, for example.

At the start of the war period, T/O's (later T/O&E) providing for veterinary units and units having their own or organically assigned veterinary personnel were 24 in number (*2*). During the war, this number was increased to 65 or 70, including some few which were canceled (such as that for the veterinary convalescent hospital), not utilized in organizing a unit, or changed with the resultant discontinuance of the veterinary component (such as that for the headquarters, infantry division). At least 550 War Department-activated units had veterinary officers and enlisted personnel assigned to them pursuant to the pertinent T/O's during World War II.

The following tabulation shows the number of such assignments in units known to have veterinary personnel assigned:

Unit[1]	*Number*
Headquarters, General Headquarters	0
Headquarters, medical service, communications zone	0
Headquarters, army	11
Headquarters, corps	14
Headquarters, cavalry corps	0
Headquarters, armored corps	2
Headquarters, infantry division (square and triangular)	60
Headquarters, airborne division	5
Headquarters, armored division	16
Headquarters, light division (pack transport)	1
Headquarters, mountain division	1
Headquarters, cavalry division	2
Cavalry regiment, horse Cavalry regiment, horse and mechanized	24
Field artillery battalion, 75-mm. gun, horse drawn Field artillery battalion, 75-mm. howitzer, horse Field artillery battalion, 75-mm. howitzer, pack Field artillery battalion, 75-mm. howitzer, pack, mountain	28
Field artillery regiment, 75-mm. field howitzer, horse	0
Field artillery regiment, 75-mm. howitzer, pack	0
Field artillery regiment, 75-mm. gun, horse drawn	0
Division artillery, cavalry division	2
Division artillery, light division	1
Division artillery, mountain division	1
Separate veterinary company	12
Veterinary troop, medical squadron	3
Veterinary company, medical battalion (mountain)	2
Veterinary animal service detachment, Team DC	27
Veterinary evacuation detachment, Team CD	0
Veterinary evacuation detachment, Team CE	2
Veterinary evacuation hospital	4
Veterinary convalescent hospital	0
Veterinary general hospital	1
Veterinary station hospital	2
Veterinary hospital detachment, Team DA	1
Veterinary hospital detachment, Team DB	1
Headquarters animal service, Team AR	1
Veterinary food inspection detachment, Team DD	122
Veterinary detachment, aviation	5
Veterinary section (independent, field artillery battalion, 75-mm. howitzer, pack)	34
Veterinary section (independent, quartermaster remount troop)	9
General, station, and convalescent hospitals, and convalescent camps and centers	[2]
Headquarters, hospital center	[2]
Headquarters, medical concentration center	[2]
Medical general laboratory	4
Medical laboratory	19
Medical supply depot	12

[1] Does not include provisional organizations.

[2] Data not available.

Unit[1]	*Number*
Quartermaster pack troop or company	0
Quartermaster squadron	2
Quartermaster battalion (mountain)	1
Quartermaster wagon battalion	0
Quartermaster remount troop and squadron	10
Quartermaster war dog platoon (later, infantry scout dog platoon)	21
Quartermaster refrigeration company, fixed	20
Signal pigeon company (and similar units)	12
Headquarters and headquarters company, major and medium ports, oversea	30
Headquarters, air force Air service command	16
Air corps headquarters and headquarters squadron, air force base command	(2)
Arctic search and rescue squadron	(2)
Engineer, infantry, and other field units	9

1 Does not include provisional organizations.
2 Data not available.

Headquarters, Army and Corps

The senior theater command headquarters to be described in T/O's was general headquarters. One such table pertaining to its initial organization included provisions for two veterinary officers, one in the grade of colonel and the other in the grade of captain or first lieutenant, who were to be a part of the headquarters medical section (of 13 Medical Department officers) (*3*, *4*). Actually, no such headquarters unit was deployed that included Veterinary Corps officers. Mention must also be made of another command staff that was described; namely, headquarters, medical service, communications zone (*5*, *6*). This set forth a veterinary section of five officers, which approximated a fifth of the total number of Medical Department officers authorized, including one each in the grades of colonel, lieutenant, and major, and two in the grade of captain, and five veterinary enlisted personnel. The other sections of this medical headquarters staff were administrative, hospitalization, supply, personnel, evacuation, sanitation, vital statistics, consultant, and dental.

The senior, and active, echelon of tactical command headquarters staff unit in the theater commands during World War II was headquarters, army. Its T/O included provisions for two veterinary officers, one in the grade of colonel and the other in the grade of captain, and two veterinary enlisted personnel (*7*, *8*, *9*). At the beginning of the war, four such army headquarters (First, Second, Third, and Fourth) had been established in the Zone of Interior to organize the defense of continental United States, but later two of these were deployed overseas, as were seven other army headquarters. Army veterinarians accompanied the First, Third, Seventh, Ninth, and Fifteenth U.S. Armies in the European theater, the Fifth U.S. Army which fought on the Italian peninsula, the Sixth and Eighth U.S. Armies in the Southwest Pacific Area, and the Tenth U.S. Army which fought the last battle of World War II, on Okinawa. The composition of each field

army varied considerably, but so far as the active field army's veterinary service was concerned, none included a large number of veterinary units.

The army veterinarian was normally the assistant to the army surgeon, who reported on veterinary affairs to the army commander only indirectly or through the army's G–4 section of the general staff. During the war period, a new general staff section, or G–5, was established within these army headquarters specially to supervise civil affairs and military government activities during the periods of combat in liberated Allied and occupied countries. Some few armies in the European theater thus gained the attachment of veterinary civil affairs officers in their headquarters staffs.

During the war, in the European and Mediterranean theaters of operations, two or more field armies were grouped and operationally controlled by a new type headquarters organization, the army group. For example, in their fight northward on the Italian peninsula, the U.S. Fifth and British Eighth Armies were major commands of the Fifteenth Army Group—predominantly staffed by British Army personnel. On the European Continent, the U.S. Sixth Army Group comprised the U.S. Seventh and French First Armies on the southern front, while the First U.S. Army Group, later named the U.S. Twelfth Army Group (in the winter of 1944–45), controlled the American field armies on the central front. There was no prescribed T/O for an army group headquarters, and only the Twelfth Army Group included a Veterinary Corps officer—only in the capacity to technically supervise or coordinate veterinary civil affairs matters between the central armies.

Next below the echelon of the field army headquarters, tactical command was assumed by corps headquarters. At the beginning of the war, the headquarters staffs for the army corps (of infantry type), cavalry corps, and the new armored corps were described in the pertinent T/O's as including a corps veterinarian. Of course, no cavalry corps headquarters was organized, and, during the winter of 1942–43, War Department action on streamlining the other corps headquarters staffs to have a tactical mission only resulted in the elimination of the personnel space authorizations for the veterinarian from both the armored and the army corps headquarters. As a result, the majority of existent corps veterinarians were transferred at once, but others were continued in their assignments for a year or more. In 1942, veterinarians were on duty with the II, III, IV, V, VI, VII, VIII, IX, X, XI, XII, XIV, XV, and XVIII Corps, and the I and II Armored Corps.

Headquarters, Division

In World War II, 91 divisions were mobilized; this number included the 2d Cavalry Division which was activated twice and inactivated twice during the war period, but the Army Veterinary Service was not the important segment of the combat division that it was in World War I when these utilized horses and mules as their principal means of transport. The

infantry division and the armored division bore the major share of the land combat operations, but other types, such as airborne, mountain, and cavalry divisions, were deployed also. All of these included, at one time, their own organically assigned veterinary personnel, as did an experimental type of division referred to as the light division (pack transport).

Infantry division.—Veterinary Corps officers were assigned, at one time or another, to all but a few of the some 60 infantry divisions that were in active status during World War II. By V–J Day, however, there were few, if any, infantry division veterinarians in the Army. This loss of veterinary personnel in the basic ground combat organization was quite drastic in view of the fact that T/O's as late as 1939 were authorizing space vacancies in an infantry division for three veterinary officers and several enlisted personnel. By the end of another year or two, the basic organization for the existing square-type infantry division was being re-formed into the new triangular-type and was being completely motorized. However, the newer T/O's for headquarters, infantry division (square), continued the veterinary personnel authorizations at one officer in the grade of major and two enlisted personnel; the new triangular division headquarters T/O provided for the assignment of only the veterinary officer in the grade of major. Eventually, all infantry divisions were converted to the triangular type. The continuing need for divisions, without animals, to have such assigned personnel was described once, at the start of the war period, as "the division veterinarian with an infantry division will primarily be concerned with the inspection of meats, meat-food, and dairy products for the division" (*10*). Subsequently, in the spring-summer of 1943, Headquarters, Army Ground Forces, successfully programed a reduction or economies of personnel within the T/O's for the infantry division; and thus "* * * The veterinary officer was dropped; when the office of The Surgeon General protested, the Army Ground Forces explained that the division had no animals and that meat inspection was a function suitably relegated to [the field] army" (*11*). Actually, the new T/O (dated 15 July 1943) which did not provide for a division veterinarian was not immediately applied, and some division veterinarians were continued in their assignment for many months, either as part of the permissible overhead or as substitute sanitary officers and assistants to division surgeons.

Armored and airborne divisions.—During the first few years of the war, the T/O's for headquarters, armored division, and for headquarters, airborne division, each included space authorizations for division veterinarians in the medical sections, usually an officer in the grade of major and one or two veterinary enlisted assistants. Pursuant to this authorization, the five airborne divisions which were overseas in 1944 were assigned their own veterinary personnel (namely, the 11th, 13th, 17th, 82d, and 101st Airborne Divisions); and nearly all of the 16 active armored divisions at one time had division veterinarians.

Light division.—During World War II, Army Ground Forces studied proposals modifying or reducing the standard infantry division and specializing its personnel and equipment for deployment such as in an amphibious, airborne, jungle, or mountain operation. Thus, in June 1943, a single, pack animal-transported light division was organized for trial study as one proposed for jungle warfare (the 71st Light Division, Pack, Jungle), but it was reconverted to a standard infantry division before deployment from the Zone of Interior. It may be observed, however, that pursuant to T/O's, the headquarters, light division, contained a veterinary officer in the grade of major, if the division was to be moved by pack animals.

Mountain division.—The mountain division originally occupied the same trial status as did the light division. That is, in mid-1943, a single light division was organized as a reduced infantry division but was specially manned and equipped for mountain warfare (namely, the 10th Light Division, Pack, Alpine). Later in 1944, when Army Ground Forces discontinued its trials with the special light divisions, this unit was brought up to regular division strength as the 10th Mountain Division and was redeployed in December 1944 to the Mediterranean theater. Pursuant to T/O's, a division veterinarian in the grade of major and two veterinary enlisted personnel were assigned to headquarters, mountain division (*12*, *13*). Divisional elements below the headquarters that had assigned veterinary personnel were: Special troops (with one veterinary officer in grade of captain and five veterinary enlisted personnel), the three infantry regiments (each with two company grade veterinary officers and six enlisted personnel), and the engineer battalion (with one veterinary officer in the grade of captain or first lieutenant and five enlisted personnel), these having 243, 953, and 538 animals, respectively. Other elements were the veterinary troops of the mountain medical battalion, the division artillery with its three field artillery battalions and veterinary sections, and the quartermaster battalion, mountain, with its three quartermaster pack companies. Altogether, the animal strength of the mountain division aggregated 6,152 mules and horses.

Cavalry division.—The medical section of headquarters, cavalry division, was authorized to include the division veterinarian and two veterinary enlisted personnel (one as a meat and dairy inspector) (*14* through *18*). During the early part of the war period, the division veterinarian was also commanding officer of the division medical squadron's veterinary troop, but, in December 1940, the offices of division veterinarian and troop commander were separated by changes in the existing T/O's for the medical squadron. This was confirmed later, in the spring of 1942, when new T/O's for headquarters, cavalry division, included provision for the division veterinarian without referring to the organization of the medical squadron or its veterinary troop. Of course, there were other and major changes in the various elements comprising the standard cavalry division. The wartime T/O's

generally referred to the division as including two brigades (each with two cavalry regiments and a machinegun squadron); division artillery; engineer, medical, and quartermaster squadrons; signal troop; and military police battalion. The division, at full strength, had 11,000 to 12,000 officers and enlisted personnel (including 14 Veterinary Corps officers) and approximately 7,300 horses and mules.

There were two cavalry divisions in the wartime Army: The 1st Cavalry Division which continued in existence after the early 1920's; and the 2d Cavalry Division which was activated in April 1941 and temporarily or partially disbanded in July 1942, only to be completely reactivated in February 1943 (with Negro enlisted personnel) and then completely inactivated during the first 5 months of 1944. The 2d Cavalry Division, without its animals but with its full complement of veterinary personnel, was deployed into the North African theater in 1944. During the earlier period of its active status, this division included the following elements with assigned veterinary personnel: The 9th, 10th, 27th, and 28th Cavalry Regiments; the 77th and 79th Field Artillery Battalions; the 20th Quartermaster Squadron; and a veterinary troop. The 1st Cavalry Division, like the other, proceeded overseas without animals, and included the Headquarters Troop, the 5th and 12th Cavalry Regiments of the 1st Cavalry Brigade, the 2d Cavalry Brigade with the 7th and 8th Cavalry Regiments, the 61st and 99th Field Artillery Battalions (75-mm. Howitzer Pack), 16th Quartermaster Squadron, and the 1st Medical Squadron. It was deployed in the Southwest Pacific Area in mid-1943 but entered combat as infantry.

Cavalry Brigades and Regiments

The cavalry regiment, horse, and the cavalry regiment, horse and mechanized, pursuant to T/O's, had different-sized veterinary sections. In the cavalry regiment, horse, the medical detachment veterinary section included 3 officers (including one in the grade of captain who normally was designated regimental veterinarian, and two in the grade of first lieutenant who served with the regiment's two rifle squadrons) and 14 enlisted personnel (*19, 20, 21*). The regiment was mounted on 1,500 to 1,600 horses. In contrast, the cavalry regiment, horse and mechanized, was furnished approximately 550 horses specifically for the regimental squadron, horse, while this regiment's other squadron was completely motorized or mechanized. The horse-mechanized unit included a veterinary section of one officer in the grade of captain and six enlisted personnel (*22, 23, 24*). During World War II, veterinary officers were assigned to duty to, or as National Guard officers entered active military service with, at least 23 of these regiments: namely, 2d through 14th, 27th, 28th, 101st, 102d, 104th, 106th, 107th, 112th, 113th, 115th, and 124th; also, Veterinary Corps officers served with the 26th Cavalry Regiment (Philippine Scouts) which fought on the Bataan peninsula in 1941–42.

Field Artillery Battalions and Regiments, and Division Artillery

Field artillery units having organically assigned veterinary personnel included at least four kinds of battalions, three types of regiments, and the so-called division artillery such as of cavalry, light, and mountain divisions (table 18). These were horse mounted, horse drawn, or moved by pack animal. During the war, available records show that there were as many as 28 such field artillery battalions to which veterinary officers were assigned at one time or another.[1] Of course, many of the battalions were converted or motorized later, and thus their veterinary personnel departed, as did the horses and mules, before the battalions were deployed. This number also includes the battalions that were a part of the 1st and 2d Cavalry Divisions and of the 10th Mountain Division which entered into combat in the final push against the Germans in the Apennines. Other battalions, with their organically assigned veterinary sections, were deployed into combat as separate units, such as the 601st and 602d Field Artillery Battalions in southern France and the 612th and 613th Field Artillery Battalions that comprised the MARS Brigade artillery in the Burma operations.

TABLE 18.—*Assigned veterinary personnel, field artillery battalions*

Field artillery battalion, 75-mm.	Animals	Veterinary section	
		Officers	Enlisted personnel
Gun, horse-drawn	389 horses	1 1st Lt	7
Howitzer:			
Horse	491 horses	1 1st Lt	7
Pack	288 mules and horses	1 1st Lt	4
Pack, mountain	413 mules and horses	1 Capt. or 1st Lt	6

In the formation of regiments, two such battalions were grouped, and a regimental veterinary detachment of 2 officers and 10 to 12 enlisted personnel were authorized for the following: Field artillery regiment, 75-mm. field howitzer, horse; field artillery regiment, 75-mm. howitzer, pack; and field artillery regiment, 75-mm. gun, horse-drawn.

It must be mentioned that two horse or horse-drawn battalions were grouped with a third or truck-drawn battalion to form the division artillery, cavalry division (with a total animal strength approximating 1,000 horses), and that a special T/O of the latter simply merged the two relevant veterinary sections to form the division artillery's veterinary detachment (*25*, *26*). The latter was true also for the division artillery of other type divisions.

[1] This number, however, does not include the utilization of the pertinent portion of the T/O's for the pack howitzer field artillery battalion as regards the battalion's veterinary section that comprised the basis for organizing 34 separate veterinary sections or detachments.

Thus, division artillery, light division (pack transport), included three field artillery battalions, 75-mm. howitzer, pack, each with their own veterinary sections (*27*). Altogether, there were 3 veterinary officers and 12 enlisted personnel to care for approximately 850 mules and horses which were authorized for the light division's division artillery. There were three battalions, 75-mm. howitzer, pack, mountain, in the composition of the division artillery, mountain division, whose animal strength aggregated close to 1,300 mules and horses; veterinary personnel in the sections with each of the battalions aggregated 3 officers and 18 enlisted personnel (*28*). The mountain pack battalion was designed for a part of mountain division artillery but need not be so deployed; in August 1945, the earlier pack battalion was replaced by the mountain pack battalion.

Medical Department Units

There were a large number of Medical Department field units whose T/O's provided for organically assigned veterinary personnel, including those T/O's which prescribed for what was frequently referred to as veterinary field units. The latter may be subgrouped into those whose primary function in a theater command was to establish a system of animal evacuation and veterinary hospitalization, and the second group of those concerned with a theater food inspection service. These veterinary field units were:

Separate veterinary company
Veterinary troop, medical squadron
Veterinary company, medical battalion (mountain)
Veterinary animal service detachment, Team DC
Veterinary evacuation detachment, Team CD
Veterinary evacuation detachment, Team CE
Veterinary evacuation hospital
Veterinary convalescent hospital
Veterinary general hospital
Veterinary station hospital
Veterinary hospital detachment, Team DA
Veterinary hospital detachment, Team DB
Headquarters animal service, Team AR
Veterinary food inspection detachment, Team DD
Veterinary detachment, aviation

In addition, two different types of separate veterinary sections and detachments were organized during the war period by the utilization of pertinent parts of T/O's for the field artillery battalion, 75-mm. howitzer, pack, and the quartermaster remount troop. Including the latter, 226 veterinary units were organized or completely reorganized pursuant to T/O's.

Medical Department units, other than those specified for the veterinary service, that included organically assigned veterinary personnel included hospital, laboratory, supply, and medical administrative staff units. Applicable T/O's provided for a veterinary enlisted man, in the capacity of meat and dairy hygienist, in a number of hospital and medical treatment units such

as the general hospital, general hospital (neuropsychiatric), station hospital, convalescent hospital, convalescent camp, and convalescent center. Many of these, following their activation, presumably gained the assignment of the veterinary enlisted personnel, but the exact number that did was not determined. In fact, the situation with regard to veterinary service for hospital units was made less clear because some few, particularly during the early part of the war period, were deployed in the theater commands with a Veterinary Corps officer included in their organization. The same situation pertained to the headquarters, hospital center, and headquarters, medical concentration center, except that some of these headquarters units did not have the assigned veterinary personnel, though the pertinent T/O's expressly authorized veterinary personnel space vacancies for an officer in the grade of major and an enlisted man.

During World War II, four medical general laboratories were deployed in the theater commands overseas: The 1st in the European theater, the 15th in the Mediterranean theater, the 18th in the Central Pacific Area, and the 19th in the Southwest Pacific Area. These units were deployed to function as central medical department laboratory facilities in the theaters, conducting epidemiological studies, research, and technical inspections and investigation; preparing and distributing certain biologics; and issuing laboratory animals. The T/O for the medical general laboratory authorized the assignment of two veterinary officers, one in the grade of lieutenant colonel and the other in the grade of captain, and approximately four enlisted men, who were specialized in bacteriology, pathology, and food analyses (*29* through *34*). A similar, but smaller, unit was the medical laboratory. This unit, designed for deployment by a field army or in a section of a theater's communications zone, was organized internally to include a base or stationary laboratory and three mobile laboratories. During the war, 19 such units were deployed in the theaters. Each such laboratory, pursuant to T/O's, was authorized one veterinary officer in the grade of major and three to four enlisted specialist personnel, who specialized in bacteriology, pathology, and food analyses (*35* through *40*).

The medical supply depot was another field unit, with the specific mission of operating as the medical supply storage and distribution agency in a field army or section of the communications zone. The T/O's initially provided for the assignment of a veterinary officer in the grade of major and an enlisted man as his assistant. At least 12 such units were organized during the early war period and are known to have had their own assigned veterinary officers. A number of these continued the assignment of their veterinary officers even after the authorization was deleted in April 1943.

Quartermaster Corps Units

In World War II, 21 or more quartermaster pack troops and companies were organized, but none may be regarded as having its own organic veteri-

nary section. The troop or company, each with 298 mules and horses and having the capability for hauling 20 tons of cargo, was designed to operate either separately or as operational elements of a cavalry division's quartermaster squadron (in which the troop name was used) and of a mountain division's quartermaster battalion (in which the company was used) (*41*, *42*, *43*, *44*). Thus, these were the 16th and 20th Cavalry Quartermaster Squadrons, each with a pack troop, and the 10th Mountain Quartermaster Battalion, with 2 pack companies, but these 4 troops and companies are to be counted as additional to the 21 just mentioned. The reason for noting this is that the T/O's originally did not provide for a veterinary section as an organic part of the pack company or troop, so that veterinary animal service detachments of varying organizational structure were specially organized and attached to these units when operating separately. On the other hand, as elements of a cavalry squadron or mountain battalion, the veterinary animal services for the troops and companies were provided by veterinary section organizations that were set forth in the tables for the parent squadrons and battalions—the cavalry squadron having a veterinary section of one officer in the grade of lieutenant and four enlisted personnel, and the mountain battalion having its veterinary section of one officer in the grade of captain or first lieutenant and nine enlisted personnel. The inequality in the T/O's regarding the pack company and troop's veterinary services when operating separately or as elements of a squadron or battalion was corrected in May 1945 when T/O's for the pack company or troop were amended to authorize an organic or unit veterinary detachment of one officer in the grade of captain or first lieutenant and four enlisted personnel, when such company or troop was deployed separately; however, no such units were organized at this time.

Another type of pack unit was that provided in the pack-transported light division; namely, the quartermaster pack company, light (*45*). Three such companies were authorized for each division, each having 287 mules and horses, but no veterinary section was included in the organic composition of the company.

Other quartermaster field units concerned with Army horses and mules were the quartermaster remount squadron and the quartermaster remount troop—each provided with a veterinary detachment. Approximately 10 remount troops, and including separate troop units and those grouped under a remount squadron headquarters, were organized during the war.[2] Another animal unit was the quartermaster war dog platoon, later redesigned as the infantry scout dog platoon, which included a personnel space authorization in the T/O's for a veterinary enlisted man. Altogether, 21 platoon units were organized.

[2] This number does not include, however, the utilization of the pertinent portion of the T/O's for the quartermaster remount troop as regards the troop's veterinary section that comprised the basis for organizing nine separate, lettered veterinary sections.

In regard to the various quartermaster field units which were concerned with the receipt, storage, distribution, or other handling of subsistence in theater commands, there was only one whose T/O had provisions for a veterinary detachment; namely, the quartermaster refrigeration company, fixed (*46, 47*). This unit was designed to operate a perishable subsistence distribution point serving as many as 120,000 troops and, as required, to operate a field abattoir. It was authorized its own veterinary detachment of two officers in the grades of captain and first lieutenant and eight enlisted personnel; in July 1944, the veterinary detachment's enlisted strength was cut back to four men. During World War II, an estimated 20 such units with their veterinary detachments operated in the oversea commands—many companies were deployed without their butcher or other platoon elements being activated. At least nine quartermasters refrigeration companies, fixed, saw duty in the European theater, where they were attached to the quartermaster base depot units.

Signal Corps Units

There was only one field unit of the Signal Corps authorized organic veterinary service; namely, the signal pigeon company. Veterinary Corps officers were assigned to 12 or more such units during World War II.

Transportation Corps Units

At the onset of the war, water transportation was the responsibility of the Quartermaster Corps, and its oversea field installations were referred to as mobile ports, each with prescribed capacities for handling as many as 50,000 personnel and 300,000 tons of cargo a month. The T/O's for headquarters and headquarters company, port (mobile), authorized veterinary personnel spaces for an officer in the grade of lieutenant colonel and an enlisted man as meat and dairy inspector (*48*). With the development of the Transportation Corps, the Quartermaster Corps mobile port organization was replaced by two new port units—the major port and the medium port. During the war period, approximately 30 such port headquarters were activated, probably each with its own port veterinary personnel, but this last was difficult to accurately determine from available historical reports because some port headquarters were subordinated in various theater provisional organizations. For example, the 24th Major Port was lost in the organization of the Army Port and Service Command, Central Pacific Base Command, which set up at Honolulu, T.H. The numerical designation of some port headquarters units were the 1st through the 18th, the 20th through the 24th, the 51st, 52d, 53d, 55th, and the 668th through the 671st.

The headquarters and headquarters company, major port (oversea), comprised the administrative overhead for a mobile port organization and facility (*49*). Its T/O's authorized the assignment of two veterinary officers

(one in the grade of lieutenant colonel and the other as captain) and four enlisted personnel as meat and dairy inspectors. The smaller unit, headquarters and headquarters company, medium port (oversea), regulated a port organization and facility with capabilities at about a half of that prescribed for a major port (*50*). The pertinent T/O's provided personnel space authorizations for one veterinary officer in the grade of major and two enlisted personnel.

Army Air Forces Units

War Department T/O's for the medical section of headquarters, air force, included provisions for the assignment of one veterinary officer in the grade of major and a veterinary noncommissioned officer (*51*, *52*). During World War II, there were four such numbered air forces in the Zone of Interior, and the Fifth through the Fifteenth and the Twentieth were deployed in the oversea areas, but, in many of these, there was no headquarters-assigned or air force veterinarian. Usually, this last-named staff position was occupied by the commanding officer of the veterinary detachment, aviation, which was attached to the air force, or by the relevant air service command veterinarian. In the air service command, veterinary personnel space authorizations for one officer in the grade of major and an enlisted man were prescribed in the T/O's for this unit (*53*). The authorizations were a part of those provided for the medical section of the headquarters special staff group.

Another Army Air Forces unit was the Air Corps headquarters and headquarters squadron, air force base command. This included a veterinary officer in the grade of captain and one veterinary enlisted man, as a meat and dairy hygienist, in the medical personnel space authorization for the headquarters group (*54*). Also, there was the arctic search and rescue squadron which contained authorizations for a veterinary enlisted man in each of its three flights that contained sled dog teams.

TYPICAL THEATER VETERINARY SERVICE ORGANIZATION

The foregoing paragraphs are descriptive of the types of individual veterinary units and those field units having organically assigned veterinary personnel who saw service in the theater commands during World War II. Throughout the war, however, there was no single description of the principles and doctrine, which brought these various units together or into focus, as to what really comprised a theater veterinary service organization. Furthermore, such few descriptions as did exist were incomplete and meager in detail, outdated, or pertained to veterinary animal service almost exclusively (*55* through *60*). Long after the end of the period of active hostilities, such a description was developed and officially entered into discussions generally on the roles of the medical, dental, and veterinary services in a theater of operations. Referring largely to the wartime expe-

riences, the typical theater veterinary service organization thus was described in FM (Field Manual) 8–10, Medical Service, Theater of Operations, 22 March 1951.

BASE, DEFENSE, AND MINOR THEATER COMMANDS

Preparatory to the description of the functional organization of the Army Veterinary Service in the Middle East-African-European and the Asiatic-Pacific theaters, reference is made first to the several departments, base and defense commands, and minor theater organizations which were included in, or surrounded, the Western Hemisphere. The latter, for the most part, comprised the American theater. These included the original departmental commands in the Panama Canal region and in the Puerto Rican area, and the semiterritorial, semitactical organization in Alaska, later reorganized as the Alaskan Department. As Germany continued her military successes over all of the European Continent, the United States entered into the development of a number of Atlantic and Caribbean bases for bettering the defenses of the North American Continent. Thus, pursuant to the destroyer-base transaction concluded by the President in the fall of 1940, British territorial areas and islands along the North Atlantic coastline and in the Caribbean became sites for new U.S. military bases. The largest of these, created as administratively separate organizations, were the Newfoundland Base Command and Bermuda Base Command; the others, including Trinidad, in the Caribbean area were subordinated as island base organizations of the new Caribbean Defense Command. Greenland became the location for Army bases pursuant to an agreement reached in April 1941 between the United States and Denmark. In Iceland, the Army took over bases that were originally set up there in the spring of 1940 by a British expeditionary force; in 1944, Iceland separated itself from Denmark to become an independent sovereignty.

Parallel with the foregoing developments, other bases—many identified later as belonging to the Army Air Forces Air Transport Command—were developed in the Western Hemisphere along the aerial routes which were followed in the delivery of airplanes and lend-lease supplies to the Allied military forces in various parts of the world. This, in part, marked the origin of U.S. Army Forces, South Atlantic, and also certain commands in Canada, though the western part of that country became more important militarily as the Northwest Service Command in connection with the development of the Alcan Highway and Canol Project. Regardless of the nature or military reasons for their creation and development, the various base and defense commands each had its own veterinary service organization. Their missions were primarily those of food inspection, including the conduct of inspections on meat and dairy products which were procured from indigenous sources. On the other hand, the veterinary services with animals in

these commands were not extensive, though Army dogs were utilized in some, and Army mule and horse strength in the Panama Canal Department approximated a thousand animals in 1941.

Caribbean Defense Command

The Caribbean Defense Command, with headquarters located at Quarry Heights, C.Z., was organized in February 1941 purposefully to coordinate the control of Army activities in the Panama Canal Department, the Puerto Rican Department (later Antilles Department), and the several task forces and base commands which then were setting up at the bases leased from the British and in other territories in the Caribbean area. This was one of six defense commands created to organize the defense for that which was to be named the American theater, before war was declared; the others being the Alaska Defense Command and the four (that is, Eastern, Central, Southern, and Western) which were established within the continental United States. The early organization of the Caribbean Defense Command was made up of three sector subcommands: the Panama Sector; the Puerto Rican Sector, including the department by that name, as well as Army personnel and activities in the Virgin Islands, Jamaica, Cuba, and Antigua; and the Trinidad Sector, including the Trinidad Base Section and the forces in Saint Lucia, Aruba, and Curacao, and the Guianas (British, French, and Dutch). Each sector subcommand had its own veterinary service organization, but there was no coordination between them at the level of the Caribbean Defense Command—the latter having no staff veterinarian in its headquarters. On the other hand, the commanding general of the Caribbean Defense Command also was the Panama Canal Department commander, but the defense command headquarters special staff was kept unusually small: it did not include a staff surgeon until the fall of 1943.

The trisector organization of the Caribbean Defense Command lasted until June 1943 when the Puerto Rican Department was renamed Antilles Department and reorganized to include the Trinidad Sector and Base Section as a subordinate echelon of command. The two-departmental organization was continued until September 1945. At that time, "defense" was dropped from the name and it became Caribbean Command. Just before this change in name was made, or on 11 August 1945, the theater command headquarters formally gained a Veterinary Corps officers on its medical staff by the additional duty assignment of the Veterinarian, Panama Canal Department. On 1 September 1945, a T/O reversed the status of the theater command veterinarian, with his reassignment to primary duty in the theater headquarters and additional duty to Headquarters, Panama Canal Department (*61*).

Panama Canal Department

The Army Veterinary Service with the Panama Canal Department originated in World War I. During 1940–41, its peacetime personnel strength

was almost doubled, to include, as of the end of December 1941, 7 veterinary officers and 53 enlisted personnel. Most of these were on duty with the 3d Veterinary Company, the 2d Field Artillery Battalion, and provisional veterinary hospital organizations at Fort Clayton and Fort William D. Davis; the department's animal strength approximated 1,000 mules and horses. However, after 1942, when the 2d Field Artillery Battalion was motorized and its mules transshipped to the Pacific theaters and Zone of Interior, this number of veterinary personnel was reduced to approximately 6 officers and 15 enlisted personnel and so remained until after the war period. In July 1944, the personnel were transferred to the newly established Veterinary Service Detachment, Panama Canal Department, under the direct jurisdiction of the department veterinarian located at Fort Clayton. Subdetachments then were organized at Fort Clayton, Fort William D. Davis, Post of Corozal, and at Guatemala City, Guatemala, and at Salinas, Ecuador. The War Department allotment or manning table that provided for this organization also included the veterinary space authorizations for the Sixth Air Force.

The veterinary service with animals concerned the mules and horses which were used by the 2d Field Artillery Battalion and the Panama Mobile Force, but these units were motorized later, and the excess animals then were transshipped from the department, the last shipment being made in June 1943. In the interim (beginning in December 1942), however, Army dogs were brought into the Panama Canal Department and were placed under the control of the Army Veterinary Service; on request, dogs also were issued to the U.S. Marine Corps (fig. 17). In addition to these activities, complete professional services were provided to the Navy and the Marine Corps which were utilizing mules and native ponies in mounted guard patrols, a veterinary investigation was conducted for the Panama National Police Corps following an incident of feed poisoning among a large number of its police horses, and the Army Veterinary Service cooperated with local civilian authorities in the operation of import animal quarantines such as concerned the traffic of dogs and other pet animals belonging to military personnel. In this connection, it may be noted that a dog involved in a fatal case of human rabies (in an Army officer, in Guatemala) was quarantined for approximately 2 months at the Army veterinary hospital, Fort Clayton, and then destroyed; the fact that this dog manifested no clinical symptoms of rabies during the quarantine period and the subsequent laboratory examination of brain tissue was negative for Negri bodies resulted in civil action to extend the animal import quarantine period to 6 months.

In regard to the subsistence supply, the Army Veterinary Service inspected all foods, including fruits and vegetables, that were received from the Zone of Interior and cooperated with quartermaster officers in the procurement locally of fresh milk, ice cream, and beef. The handling of perish-



U.S. ARMY PHOTO

FIGURE 17.—Kennel areas in the Panama Canal Department.

able subsistence in the Panama Canal Department was facilitated by the construction of a cold storage plant (of approximately 360,000 cu. ft. capacity) at Corozal General Depot; ration issues were distributed from this point by refrigerated truck and boats to outposts as far as a hundred miles away. Under the prevailing tropical and humid climatic conditions, considerable difficulty was experienced in the handling of perishable subsistence without the occurrence of some losses in quality due to partial thawing of products. To prevent outright spoilage, many products which ordinarily were handled in a chilled refrigerated state were frozen. The difficulty was best indicated by spoilage losses totaling 50 to 95 percent of the quantities in certain shipments received at Corozal, particularly in shipments of head lettuce. The fresh fruits and vegetables that were procured locally originated from Guatemala, Costa Rica, and Ecuador. Fresh milk for the military forces in the department was obtained from two dairies, one at Mount Hope, and the other at Aguadulce.

During 1943 and 1944, the Army Veterinary Service in the Panama Canal Department inspected more than 160 million pounds of meat and dairy products, as follows:

1943	Pounds
Procurement inspections:	
Prior to purchase	15,503,527
On delivery at purchase	23,684,983
Surveillance inspections:	
Any receipt except purchase	10,778,618
Prior to shipment	2,388,329
Issue	33,914,959
1944	
Procurement inspections:	
Prior to purchase	714,354
On delivery at purchase	5,222,261
Surveillance inspections:	
Any receipt except purchase	34,296,236
Prior to shipment	10,457,882
Issue	26,486,920

Another 1,805,952 and 1,268,899 pounds, respectively, were inspected for the Army Exchange System which manufactured most of the ice cream that it sold, though some quantities were procured from three commercial plants. It must be noted that the veterinary inspections pertaining to locally procured foods were also a part of the medical protective procedures of antibiological warfare.

Along with the theater programs to lessen the volume of water transportation into the Panama Canal Department, the Army Veterinary Service surveyed the fresh beef supply in Central and South American countries and conducted the necessary ante mortem and post mortem inspections. The Rastio Nacional, Escuintla, Guatemala, proved to be the largest of the sources surveyed, and under Veterinary Corps supervision produced and shipped to the Panama Canal Department more than 850,000 pounds of fresh-frozen carcass beef during the period November 1943 through July 1944. The absence of suitable abattoir facilities in San Salvador precluded beef procurement from El Salvador. For the supply of fresh beef to the airbases at David, Panama, and Salinas, Ecuador, local cattle slaughtering projects were set up with veterinary officers conducting the necessary inspections. The David airbase supply originated at Los Potreros and approximated 15,000 pounds each month, and that in Ecuador provided more than 210,000 in the period from 6 October 1942 through 24 November 1943. None of these projects was conducted without certain problems, not excluding international relations, such as refrigeration and transportation of the meat, the standards of abattoir construction and operation, and the grade quality of the beef. In Ecuador, in addition to the development of a suitable meat supply, the veterinary officer surveyed and assisted in the development of modern marketing procedures and sanitary controls for fresh fruits and vegetables, eggs, and milk. The last-named product was obtained from a dairy plant in Guayaquil which bottled the milk in beer bottle containers and then pasteurized the bottled milk in a nearby brewery plant; the raw milk

supply originated from a herd specially examined and tuberculin tested by the veterinary officer. The latter, also, provided attending veterinary services to the bases at Talara, Peru, and in the Galapagos Islands where the major problem was that of properly handling and storing perishable subsistence.

Antilles Department

The Antilles Department, like the Panama Canal Department, was a sector or administrative subarea of the Caribbean Defense Command. It was established on 1 July 1939, originally as the Puerto Rican Department, with headquarters at San Juan, P.R., but on 1 June 1943, its name was changed and the new Antilles Department was assigned jurisdiction over a much larger area. Soon after the Department was established, in December 1939, a Veterinary Corps officer was assigned to station at the Post of San Juan and station hospital; though he acted in the capacity of Department veterinarian, that office was not officially designated until September 1941. By that date, the Puerto Rican Department had gained sufficient numbers of veterinary personnel for their assignment throughout the immediate geographic areas which were added when the Department became a sector subcommand to the newly created Caribbean Defense Command.

By the end of 1942, the Department's veterinary service organization was extended to the Post of San Juan, to Fort Buchanan (site of the Puerto Rican General Depot, later Antilles General Depot 1), and to the Department's medical laboratory, as well as to the forces or base commands on Cuba, Jamaica (at Fort Simons), Virgin Islands, St. Thomas, Antigua, and British West Indies. Then, during the next year, after the original name was changed to Antilles Department, the geographic boundaries were greatly expanded, encompassing those of the formerly independent Trinidad Sector and Base Command. The latter, with headquarters at Port of Spain, Trinidad, B.W.I., included a base force veterinarian. The original Trinidad Sector and Base Command, after its formation (in May 1941), gradually added the base subcommands and task forces that were being set up, such as in the British West Indies on Saint Lucia Island, in British Guiana, in the Netherlands Antilles (or Netherlands West Indies) on Aruba and Curacao, in Netherlands Guiana (or Surinam), and in French Guiana. On account of the small size of the various defense forces, only veterinary enlisted personnel were assigned to most areas. The merger of the original Puerto Rican area and the Trinidad Sector—totaling 14 or more separate countries, islands, and island groups—saw the strength of the Army Veterinary Service in the Antilles Department at 12 officers and 25 enlisted personnel (as of the end of 1943). During 1945, these personnel were regrouped under the central supervision of the Department's Veterinary Detachment, Medical Section, with home station at Antilles General Depot 1 (at Fort Buchanan).

Veterinary service with animals in the Antilles command was limited to Army sentry dogs, 24 of them being received during November 1942 and distributed to military installations in Puerto Rico, Jamaica, and Antigua. As of December 1945, only 12 dogs remained, all housed and cared for by the veterinary detachment at the general depot, Fort Buchanan. Another 10 Army dogs were utilized at Fort Read, Trinidad. The veterinary meat and dairy hygiene inspection activities largely concerned surveillance inspectional control over products which were received from the Zone of Interior. During 1942, subsistence brought into the area and inspected approximated 20 million pounds of meat and dairy products; losses totaled 0.34 percent on account of spoilage. In Puerto Rico, Jamaica, and Cuba, fresh milk and ice cream (totaling 4 million pounds in 1943), and some fresh-frozen fish were procured locally, as were also some fresh beef and poultry from the Dominican Republic and Cuba. In Puerto Rico also, the Army Veterinary Service, on request of the Department surgeon, expanded its inspection activities to commercial food establishments, including soft beverage bottling plants, bakeries, and restaurants. In connection with the conduct of these sanitary inspections of food establishments and of locally procured food products, the necessary bacteriological examinations and chemical analyses workload was referred to the Department medical laboratory which had become operational, in the spring of 1942, complete with a veterinary laboratory subsection. In the Trinidad Sector, there was almost no procurement of foods locally, though a very small quantity of fresh milk was obtained in British Guiana, and some few cattle of Venezuelan origin were slaughtered under veterinary supervision to furnish beef to the U.S. Engineer Department civilians at airbase construction camps.

Bermuda Base Command

The Bermuda Base Command, coming into existence in the spring of 1941, evidenced no need for veterinary personnel until after a special survey of the local milk industry was conducted by a Veterinary Corps officer, on request of the Government of Bermuda. This survey demonstrated that the command's milk supply was originating from a local milk industry wherein 51 percent of the dairy cattle were infected with brucellosis (an animal disease, transmissible to the human being, called undulant fever), less than half of the milk production was pasteurized, and dairy farm and milk plant sanitary controls were almost nonexistent. Subsequently, with the assignment of a veterinary officer and two enlisted personnel to the base command surgeon's office in 1942, much was accomplished in assisting the Bermuda Government to improve the local dairy industry. His principal duties were the inspection of the troop food supplies and the care of Army horses.



FIGURE 18.—Office of the Post Veterinarian, Fort Pepperrell, Newfoundland, November 1943.

Newfoundland Base Command

Newfoundland, an area named in the destroyer-base exchange agreement of 1940 between the United States and Great Britain, was entered by an Army task force landing there in January 1941. The station hospital, including a Veterinary Corps officer and the medical staff section of the new base command headquarters, comprised the original Medical Department organization at Fort Pepperrell (near St. John's). Area or station commands, each with their own veterinary personnel, were set up at Fort Pepperrell, Fort McAndrew (near Argentia), Harmon Field (near Stephenville), and the airbase at Gander Lake—the last two installations being transferred in October 1943 to the jurisdiction of the North Atlantic Wing, Air Transport Command (fig. 18). Personnel strength reached a peak of 5 veterinary officers and approximately 30 enlisted personnel. During July 1944, the office of the post veterinarian, Fort Pepperrell, was merged with that of the base command veterinarian, and, as of the end of that year, three veterinary officers (together with nine enlisted personnel) were at station at Forts Pepperrell and McAndrew, and at Air Transport Command's Harmon Field.

The Army Veterinary Service with the Newfoundland Base Command was largely concerned with inspecting the troop food supply. Thus, during

1943 and 1944, the inspection workload each year approximated 7 million pounds of subsistence, including 4 million pounds which originated from the Zone of Interior and the remainder comprising inspections of locally procured products. Rejections in 1944 totaled 92,250 pounds of meat for failures to satisfy contractual requirements and another 36,000 pounds of Government-owned products, mostly fresh fruits and vegetables, which were spoiled. Veterinary animal service, on the other hand, was more limited, this being extended to approximately 35 Army dogs which were used as adjunct security guards at installations and to 1,000–1,500 Army signal pigeons which arrived during 1943. The enzooticity of canine distemper among the civil dog population led to the veterinary programing for annual revaccinations of the Army dogs against this disease; rabies, however, was nonexistent.

In regard to the troop food supply, the Army Veterinary Service routinely inspected all foods (including fruits and vegetables) which were received from the Zone of Interior, for sanitary condition, and conducted procurement inspections for grade and sanitary qualities of that brought in from Canada and of the fresh milk and fish which were procured locally. In connection with food procurement in Newfoundland, the Army Veterinary Service surveyed the local dairy industry, cooperated with civilian agricultural and public health officials in the start of test programs against tuberculosis and brucellosis in the dairy herds, cooperated with the two veterinary officials in conducting these tuberculin and brucellosis tests on the cattle, and sought improvement in the sanitary standards for the handling, storage, and dressing of the local fish catch. The bacteriological examination of fresh milk supply was conducted by the Army Veterinary Service in its provisional laboratory set up at a base hospital.

Greenland Base Command

Greenland was another area vital to the defense of the air and sea communications routes in the North Atlantic. Pursuant to an agreement reached between the United States and Denmark, a U.S. Army task force landed there in June-July 1941, relieving the original U.S. Marine Corps garrison, and established Headquarters, Greenland Base Command. Station hospital units soon were set up at the four main, widely scattered bases, but it was not until 1942, that Medical Department activities throughout Greenland were brought under the central supervision of a recently designated base command surgeon. A staff veterinarian, who attended all four bases, was named at the same time. The veterinary activities at these bases included the sanitary or surveillance inspections of meat and dairy products which were supplied to Army troops (which reached a peak strength of 5,600 in October 1943) and the professional care of the Army dogs. All food supplies were received from the Zone of Interior. Limited quantities of mutton and lamb were planned for local procurement, but a



FIGURE 19.—Maj. F. A. Todd, VC (kneeling) and Capt. H. J. Robertson, VC (standing) providing professional assistance to the Icelandic agricultural authorities and their veterinarians.

veterinary survey showed that the existing shortages in facilities to properly move the meats to the bases would preclude this.

Iceland Base Command

In Iceland, the Army Veterinary Service established a program for civil affairs assistance that was the first of its kind and that contributed materially to the excellent relations of the U.S. military forces with that country's government and population (fig. 19). In fact, what was accomplished there by Army veterinary officers was recorded in U.S. diplomatic correspondence by an expression of appreciation by the Prime Minister of Iceland "for the valuable services they are rendering to Icelandic economy and the rural life of Iceland by this cooperation" (*62*). These services included the initiation of regulatory controls against the diseases affecting the local animal industry, the modernization of the milk and dairy industry and the development of hog raising, and the conduct of scientific and prac-

tical veterinary research programs, including investigational studies on that disease of sheep called jagziekte.

Veterinary services in Iceland were organized under the jurisdiction of Headquarters, Iceland Base Command, which set up operations at Reykjavik, in September 1941. This headquarters included a veterinary officer in its base surgeon's office, who maintained technical supervisory responsibilities over the veterinary officers attached to two hospital units (the 208th General and the 168th Station Hospitals) and the 5th Infantry Division that came into Iceland from the Zone of Interior. The veterinary enlisted personnel were assigned for administrative purposes to a quartermaster refrigeration company. Aside from their special duties in regard to civilian veterinary matters, their primary duty was that of inspecting the Army food supply. Most of this supply originated from the Zone of Interior, being transported on U.S. Navy vessels. On request of local Icelandic authorities, incoming fresh fruits and vegetables were inspected, particularly with reference to the prevention of the introduction of new plant diseases, but later, the Army adopted procedures for burning garbage waste containing such material. With civilian cooperation, the Army Veterinary Service set up a sanitary source of fresh milk supply for hospital patients, and eventually, this supply was extended to troops. Ice cream, lamb, and fish were procured locally, following Veterinary Corps inspection of the commercial industries. Laboratory controls over the local food supply and investigational research on animal diseases were established and maintained by the Army Veterinary Service, on invitation of Icelandic authorities, in the University of Reykjavik.

Northwest Service Command

The Army Veterinary Service with the Northwest Service Command was begun during January 1943, or approximately 3 months after the command—with headquarters at Whitehorse, Yukon Territory, Canada—was established by the War Department. That command was the designated field agency of Army Service Forces (in the Zone of Interior), taking over the administration of U.S. military activities in western Canada (namely, in Alberta Province, British Columbia Province, Yukon Territory, and Mackenzie District) and the southeastern area of Alaska. These activities were the maintenance of a railway, the completion of the Alaskan (or Alcan) Highway, and the construction of pipelines (called the Canol Project) from Norman Wells and Watson Lake. Since early 1942, the U.S. Roads Administration Agency, Army engineer construction regiments, and Task Force 2600 had been pioneering the highway and pipeline projects. Near the war's end, on 30 June 1945, the Northwest Service Command was reorganized as a district subcommand under the jurisdiction of the Sixth Service Command.

Following the arrival of the first veterinary officer, further development of the command veterinary service organization was delayed for some time by local administrative difficulties and a misleading conception that none was needed. Between June and October 1943, 19 additional veterinary personnel, including 5 officers and 14 enlisted men, were brought in on request of the service command; these were grouped under the administrative control of the newly formed Veterinary Section, Medical Branch, Headquarters, Northwest Service Command. From this single veterinary detachment, personnel under the supervision of the service command veterinarian were placed on detached service at stations along the Alaskan Highway, the Mackenzie River supply route, and the Army Quartermaster Market Center at Edmonton, Alberta Province. Another veterinary detachment was included in the organization of the Northwest Service Command Medical Laboratory, which was established in August 1943 and was discontinued by the end of March 1944. In addition, a varying number of personnel other than those assigned to the service command conducted veterinary services for or in the Northwest Service Command: (1) The veterinary personnel belonging to the Alaskan Wing or Division, Air Transport Command, who provided base veterinary services along the airplanes-for-Russia route through the Northwest Service Command; (2) others from the Ninth Service Command, Army Service Forces, who conducted meat and dairy hygiene inspections in the Vancouver Barracks, B.C., area; and (3) those from the Seattle Port of Embarkation who rendered ancillary port veterinary services along the inland overwater route through Prince Rupert, B.C. The veterinarian at Skagway, Alaska, which like Prince Rupert, was a subport installation originally of the Seattle Port of Embarkation, was transferred to the jurisdiction of the Northwest Service Command in the fall of 1943.

Veterinary activities in the Northwest Service Command included the care of animals, meat and dairy hygiene inspections, and laboratory services. The first-named activity, to be sure, was not extensive. However, a few pack horses and mules and sled dogs were procured and used locally by Army engineer units and, until mid-1943, some 30 dogs were kept at Camp Prairie (near Waterways). Other dogs were utilized by the Air Transport Command for use in search and rescue work for crews of forced-landed airplanes. Also, until November 1944, seven Army mules and horses were maintained at Chilkoot Barracks, Alaska. In regard to meat and dairy hygiene services, veterinary surveys were made of the sources of meat and fresh milk in western Canada, food procurement inspections were conducted for the Edmonton Quartermaster Market Center, and surveillance inspections were made of all subsistence, including fruits and vegetables, during its storage, transportation, and other handling before issue to the messhalls.

The veterinary food procurement inspections saw the rapid development of a list of approved food establishments, particularly in the Edmonton area. There, the veterinary officer with the Northwest Service Command

Medical Laboratory established a laboratory quality control over the raw milk supply and in the milk pasteurization plants which provided milk to the Army; before this time, there was little or no public health control over dairy production. In the procurement inspections of meats, the Army Veterinary Service accepted the sanitary standards prevailing in the meat plants operating under the supervision of the Veterinary Division, Health of Animals Branch, Dominion Department of Agriculture; however, Army veterinary personnel were stationed in these plants as inspectors for quality of the products during their manufacture and to check the weight or quantity of the products at delivery. The last-named activity became important because there was a great deal of variation between the Army's and the Canadian contractor's conceptions of tare weights and shrinkages. In another action regarding local supply, the Army Veterinary Service successfully prevailed upon the U.S. Engineer Department's civilian contractors of the Canol Project along the Mackenzie River route to obtain their meats through Army channels from the Edmonton area; the local sources used by the contractors were found to be unreasonably primitive and completely insanitary. The Edmonton Quartermaster Market Center also procured, during 1944–45 throughout Canada, 22,500,000 pounds of frozen poultry for Army use and export; veterinary point of origin inspections of this poultry were conducted in the Vancouver Barracks and Toronto-Montreal areas by personnel on temporary duty from the Ninth and the Second Service Commands and also of 10,600,000 pounds by veterinary personnel who were assigned to the Northwest Service Command. It may be mentioned here that the Canadian Government and poultry industry were appreciative of the improvements made in poultry production as the result of the application of Army veterinary standards of sanitation and quality control. Altogether, veterinary procurement inspections in the command for the 2½-year period (January 1943 through June 1945) approximated 46 million pounds of meat and dairy products.

Of the major supply routes through the Northwest Service Command, the overwater transportation route from the Seattle Port of Embarkation along the shores of western Canada to Skagway proved to have the least veterinary problems for subsistence surveillance inspections. In fact, the Northwest Service Command's veterinary service organization had little to do with this until late 1943, when the Skagway port veterinary service was transferred from the jurisdiction of the Seattle Port of Embarkation. At Skagway and later at Whitehorse, which were terminal points of a railway, small refrigerated storage depots were constructed. In these intertheater shipments by railroad, difficulties arose when the quantities of subsistence unloaded at the port exceeded the storage facilities in Skagway, or when snow, rockslides, and wrecks disrupted the traffic to Whitehorse. At one time, frozen foods were temporarily stacked under tarpaulin coverings, and, in another instance, boxcar loads of subsistence were moved to holding in a colder area,

but even these were lost temporarily when the cars were covered by snowdrifts. An innovation in the shipment of certain perishable foods was the use of charcoal heaters inside the railroad cars during the winter months. There were no major food losses encountered; however, in the subsistence which was returned to depot storage from camps and stations as they were closed up, there were some requirements to set up food reclamation operations. Regarding this returned subsistence—

> * * * it was found that repeated freezing and thawing, plus general weather exposure had not materially damaged many canned meats. Other items such as evaporated milk were ruined by such exposure and were condemned. Some quantities had developed rust, dents, bacterial fermentation, and lost labels.

Alaskan Department

The Army Veterinary Service with the Alaskan Department originated in October 1940 when one veterinary noncommissioned officer arrived for duty at Ladd Field (near Fairbanks). On 3 June 1941, the first Veterinary Corps officer was assigned, and before the end of that year, additional personnel were brought in from the Zone of Interior; these officers established station veterinary services at Fort Richardson (near Anchorage), Fort Ray (near Sitka), and on Kodiak Island (at Fort Greely) and Dutch Harbor (at Fort Mears). At the time, however, there was no true military department organization—the Army operations in the area being organized (in mid-1940) as the Alaska Defense Force, or as the Alaska Defense Command which was the new designation after 4 February 1941. It must be recalled that this comprised one of six such commands which were formed during the prewar emergency periods for purposes of general defensive planning for the continental United States. Until 1 November 1943, when military activities in the Alaskan command came to be administered on the basis of a separate oversea military department and the Alaska Defense Command was redesignated Alaskan Department, the area was under the control of the Ninth Corps Area and then the Fourth U.S. Army, but for defensive purposes, it was supervised by the Western Defense Command. As will be observed later, the early military organization in Alaska had little or nothing to do with the fighting on, and the recapture of, the Aleutian Islands, though this area later was included in general descriptions of the Alaskan Department.

During the early war years, the medical staff section in the Alaskan command was without a headquarters-assigned veterinarian. In April 1943, the many small and widely scattered veterinary detachments were grouped into the newly organized Veterinary Section, Service Command, Alaska Defense Command. This was renamed later as Veterinary Detachment, Alaskan Department. Its senior ranking Veterinary Corps officer initially was assigned to station on Adak Island. During this time, veterinary subsections were established at 14 locations: Adak Island, Annette Island, Fort

Glenn, Fort Greely, Fort Mears, Fort Morrow, Fort Randall, Fort Ray, Fort Raymond, Fort Richardson, Juneau, Ladd Field, Nome, and Whittier. This marked the period of maximum activity, and, soon after the reoccupation of Kiska Island (in August 1943) and the end of the Aleutian campaign, the original defense command organization gave way to a peace-time oversea department, the Alaskan Department. Eventually, the original veterinary organization was merged into Headquarters, Alaskan Department, and during December 1944, the ranking veterinary officer took over the role of department veterinarian. Then, the number of veterinary personnel in the Alaskan Department reached its peak strength of 7 officers and 33 enlisted personnel. Of course, with the decline of military operations in Alaska, the veterinary service that once had been scattered at 14 locations were consolidated on Adak Island, at Forts Glenn, Greely, Mears, and Morrow, at Ladd Field, Nome, Whittier, and at 3 new locations: Amchitka Island, Camp Earle, and Shemya Island.

At these stations, both meat and dairy hygiene and veterinary animal services were provided. During the war, more than 150 sled dogs were maintained at Fort Richardson, Ladd Field, and Nome for use in connection with land-rescue operations and evacuations of patients, and scout-messenger dogs were used on Attu, Adak, and Amchitka Islands. Also, there were 275 pigeons at Fort Richardson and Ladd Field during tthe period from November 1941 through October 1943. In June 1945, a veterinary officer undertook the development of a livestock farm on Adak Island which, by the end of the year, had a hundred hogs, fed on Army messhall garbage, and 250 chickens whose egg production was being furnished to the Army hospital. The fresh vegetable production in the gardens and hothouses at Ladd Field was managed by the veterinary officer. In cooperation with the Alaska Territorial veterinarian and public health officials, Army veterinarians tested dairy herds for tuberculosis and brucellosis. An education program for improved sanitary milk production was conducted among the farms and producers.

The Alaskan command was provided with subsistence which for the most part originated from the Zone of Interior; however, varying quantities of fresh meat and dairy products were procured locally. Thus, beginning in 1942, veterinary procurement inspections were inaugurated on quartermaster purchases of fresh fish (salmon and halibut) and locally canned salmon; also, ante mortem and post mortem inspections of reindeer (at Nome and Bethel) and of cattle (on Kodiak Island) were conducted. Later, in 1943 and 1944, lambs and hogs, respectively, were slaughtered under veterinary supervision in the Matanuska Valley. Along with this, the Army Veterinary Service programed improvements in the local dairy industries so that a regular supply of fresh milk became available for the troops at Fort Richardson, Ladd Field, and Juneau. Losses among the subsistence brought in from the Zone of Interior were relatively great because there

were no adequate storage facilities to keep the tin containers from rusting or the foods from alternately freezing and thawing with the seasonal weather changes. During the first year at Ladd Field, perishable (or fresh) subsistence was stored in an abandoned mine shaft which penetrated below the perpetual ice sheet. Also, in 1942, aerial bomb damage at Fort Mears and inadequate construction of refrigerated storage facilities at Fort Raymond led to serious losses of fresh foods.

Reference is made here to the Aleutian Islands Campaign (3 June 1942 to 24 August 1943) which otherwise is cited formally as one of the campaigns of the Army in the Asiatic-Pacific theater. The Alaskan Department had little to do with the fighting for Attu or the reoccupation of Kiska Island; however, after the United States had regained possession of these islands, they were included in the geographic boundary definitions of the Alaskan Department. Army task forces landed on Adak (in August 1942) and Amchitka Islands (in January 1943) to develop bases for the Eleventh Air Force. At about this time, a Veterinary Corps officer attached to the 25-bed hospital unit which was scheduled for deployment to Atka Island was transferred to Adak Island. On 11 May 1943, a task force composed of the main portion of the 7th Infantry Division made a surprise landing on Attu Island and, before the end of that month, drove off the Japanese forces. As to the activities of the division veterinarian who accompanied the task force, it was reported:

> * * * due to the fact that most subsistence consumed was "Type C and K", he had very little food inspection to do, so he acted as Liaison Officer, organizing litter squads at the beaches and leading them up to the front line, and in general assisting the Medical Officers where necessary. During his spare time, [he] assisted in debugging Japanese mines and high explosives * * *.

When Kiska Island was reoccupied, a Veterinary Corps officer accompanied that task force. This ended the Aleutian campaign, but within a year, the large stockpiles of food that were built up in these islands, becoming excess to requirements when the tactical forces were withdrawn, began to show evidences of deterioration and spoilage. Large quantities of these stockpiles subsequently were condemned, while some were returned to Quartermaster depots in the Zone of Interior for reclamation and repackaging. Thus, in regard to the subsistence stockpiles on Adak Island, a veterinary officer reported:

> * * * this food had been hurriedly stored on the tundra in three large dumps, which for the main part were completely covered with snow during the winter. As the snow melted off, the Veterinary Detachment was able to work, removing all that had been badly damaged by the weather. During the following year [1944] approximately 600,000 pounds of food of all types was condemned. While this amount seems high, it must be remembered that most of this subsistence had been, of necessity, roughly treated during the early stages, and much of it had been excesses on the mainland and other stations. At the time of condemnation most of it was two years old and was badly damaged due to rough handling, freezing, and rust.

U.S. Army Forces, South Atlantic

The Army Veterinary Service with U.S. Army Forces, South Atlantic, which was established, in November 1942, with headquarters located at Recife, Brazil, was initially represented by the veterinary officer then on duty with the South Atlantic Wing, Air Transport Command. He served in the additional-duty capacity as theater veterinarian, but, as it became evident that Air Transport Command operations would be exempted from theater control, he was replaced, pursuant to arrangements made by the headquarters surgeon, by another officer newly arrived from the Zone of Interior (on 1 February 1943). On 31 October 1945, when the U.S. Forces, South Atlantic, was discontinued, veterinary service in the geographic area was transferred to the jurisdiction of the Air Transport Command, South Atlantic Division, and a veterinary officer was transferred to the latter headquarters at Natal, Brazil.

The U.S. Army Forces, South Atlantic, was never a theater of operations; in fact, in many respects it was similar to the U.S. Army Forces in Central Africa—both initially acting as defense commands for the air-ferrying operations and the bases of the Air Transport Command which were strung from southeastern United States, through the northeastern part of South America, central Africa, and thence into the Middle East. During February 1943, Composite Force 8012 on Ascension Island was added to the jurisdiction of U.S. Army Forces, South Atlantic; this task force, including a Veterinary Corps officer, had set up station there in March 1942. By the end of 1943, the theater command's veterinary service organization included three officers and six enlisted personnel. These were distributed among three area subcommands: Recife, which included Fernando de Noronha, Bahía, and Ascension Island; Natal, which extended to Fortaleza (approximately 200 miles from Natal); and Belém, which included also São Luiz and Amapá. Later, a fourth area was established in southern Brazil to include Rio de Janeiro, São Paulo, Pôrto Alegre, and Rio Grande, where large quantities of foods were procured for local use.

The main activity of the Army Veterinary Service in these areas was the inspection of meat and dairy products. Large quantities of these were received by shipment from the United States, but, on account of the irregularities of shipping due to threatened enemy submarine action and the shortages in refrigerated storage facilities until the last year of the war, considerable quantities were procured locally. As of the spring of 1943, eight commercial food establishments in Brazil were listed by the Veterinary Corps as approved sources for procuring meats, poultry, milk, eggs, butter, and cheese. Others were added later, so that this number was 25 as of the end of 1944. A fresh milk supply was developed for troops in the Recife area, and some of this was shipped, in 10-gallon containers, by airplane to Natal. Ice cream was obtained, however, by the Army's manufacturing its

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own from a powdered mix brought in from the Zone of Interior. Fresh eggs were procured locally, but stringent supervision was made over the inspection (or candling) before procurement; rejections of this product approximated 65 percent of contractors' offerings. The most extensive of veterinary food procurement inspections within the South Atlantic command were conducted in southern Brazil. Early shipments of meats received from contractors in that area were rejected frequently on account of poor grade quality or where the commercial refrigerated ships had not properly handled the perishable foods. The supply from this area improved considerably after the theater veterinarian surveyed and set up a program for products improvement among the food establishments, and an Army purchasing agency was formed with headquarters in Rio de Janeiro. Eventually, in early 1945, so far as it was possible to do so, this general purchasing agency began a procurement program to satisfy the demands of the South Atlantic command for all of its meats and poultry products, and at that time a veterinary detachment was established to conduct inspections of products during their processing in the plants. Though the Brazilian meat inspection services were accepted in regard to the conduct of ante mortem and post mortem inspections of beef cattle, the Army Veterinary Service emphasized product quality grading; the inspections of sausage, bacon and ham, and other prepared meat products; and the proper packaging and transshipment of Army subsistence. Along with this, poultry inspection and the techniques of Army boneless beef production were introduced into the Brazilian food industries. Between January 1943 and September 1945, the Army Veterinary Service inspected 4,076,141 pounds of meat and dairy products on arrival from the Zone of Interior and another 8,322,585 pounds of Brazilian origin—rejections among these quantities totaling 287,147 pounds and 613,363 pounds, respectively.

Air Transport Command

A unique command, having no geographic boundaries and in a sense superimposed over all theaters of operations and theater commands, was the Army Air Forces Air Transport Command, with headquarters in Washington, D.C. Prior to June 1942, this was known as the Air Corps Ferrying Command—created in mid-1941 to deliver lend-lease airplanes to points designated by Allied Nations. Along the major aerial routes, the Air Transport Command organized sectors, later (in mid-1942) renamed wings; in July 1944, certain of these wings became divisions, some with wing subelements. There were changes in the aerial routes as the war progressed.

In July 1944, a Veterinary Corps officer was assigned to Headquarters, Air Transport Command, and about this time the number of veterinary officers on duty with the divisions approximated twenty-two. These veterinary officers were assigned to most of the principal airbases operated under the jurisdiction of the Air Transport Command or were assigned as staff

officers to the wing medical offices and thus were available to provide attending veterinary services at a number of bases along the aerial routes. Another group of veterinary officers, approximately 15 in number, were assigned to various bases of the Air Transport Command's Ferrying Division which operated from fields located in the Zone of Interior. Actually, that command's ground installations were referred to as Army Air Forces base units. Base veterinary services were not unlike those provided by other Army Air Forces veterinary personnel, and these services became particularly important where the bases along an aerial route were far distant from regular channels of Army subsistence supply. Thus, at bases along the central African route, veterinary personnel successfully developed and inspected locally procured fresh foods which were fed to aircrews and in-transit personnel. In the China-Burma-India theater, in Canada, and at various base commands of the American theater, these inspection services supplemented those conducted by theater or services of supply personnel; elsewhere, such as with U.S. Army Forces, South Atlantic, U.S. Army Forces, Azores, and U.S. Forces in Central Africa, the wing veterinarians were utilized at various times in an additional duty status in the Army theater command headquarters. In fact, following the war, military operations, such as in the South Atlantic theater command and in the Bermuda, Greenland, Iceland, and Newfoundland Base Commands, were transferred to control by the Air Transport Command.

Military Missions

Along with the discussions of the lesser theater commands, mention must be made of the various U.S. military missions. There were a number of these which were sent to foreign countries, and in several instances such as the Special Observers Group to England, the Stilwell Mission (to China), or the U.S. Military Mission to North Africa, the missions became starting points for Army theater commands.

Similar missions were maintained also in Central and South American countries to promote their military efficiency. One such agency was the U.S. Military Mission to Peru which was established in the spring of 1941 to act in technical advisory capacity to the Peruvian Army on its remount service. Subsequently, on request, a Veterinary Corps officer was assigned as assistant to the Advisor of the Remount Service of the Peruvian Army, arriving there during early March 1942. He took command of the Peruvian Army Veterinary General Hospital, Las Palmas, Lima, Peru. In mid-1944, when the original mission was enlarged to one of full mission status, the veterinary officer was designated as assistant chief of the mission, with duties also as technical advisor of the veterinary service of the Peruvian Army, commander of the veterinary hospital, supervisor of the military horseshoeing school, and technical advisor and director of clinical studies in the new National Veterinary School of Peru. Much was accomplished in improving

the veterinary services and the standards of animal care and management, including the development of new standards for training horseshoers, horseshoe manufacturing, procuring of remount animals, and breeding horses for military purposes. Also, the field procedures for conducting test and eradication programs against tuberculosis and brucellosis were demonstrated in the local dairy industry. Most notable, however, were successes obtained in the reconstruction of the civilian veterinary educational system, with action being taken by the Government of Peru in establishing its National Veterinary School, and in the start of translating standard texts on veterinary medicine into the Spanish language. "This translation project alone has warranted the detail of a U.S. veterinary officer to Peru in that it should be of great value to the veterinary profession and hence to the Peruvian Army and the livestock industry as a whole in all countries where Spanish is the national language."

A veterinary officer was also on duty with the military mission to Panama.

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14. T/O 489 W, 1 Jan. 1925.
15. T/O 8–85, 1 Mar. 1939.
16. T/O 8–85, 1 Nov. 1940, with Changes No. 1, 12 Dec. 1940, and Changes No. 2, 4 June 1941.
17. T/O 2–1, 1 Apr. 1942.
18. T/O&E 2–1, 30 Sept. 1944.
19. T/O 2–11, 1 Nov. 1940.
20. T/O 2–11, 1 Apr. 1942.
21. T/O&E 2–11, 30 Sept. 1944.
22. T/O 2–51, 1 May 1940.
23. T/O 2–51, 1 Nov. 1940.
24. T/O 2–71, 1 Apr. 1942.
25. T/O 6–110, 1 Apr. 1944.
26. T/O&E 6–110, 30 Sept. 1944.
27. T/O&E 6–270T, 21 Jan. 1944.
28. T/O&E 6–150, 4 Nov. 1944.

29. T/O 680 W, 23 Feb. 1927.
30. T/O 8–504, 1 Nov. 1940.
31. T/O 8–610, 1 Apr. 1942.
32. T/O&E 8–610, 6 June 1943.
33. T/O&E 8–500, 23 Apr. 1944.
34. T/O&E 8–500, 18 Jan. 1945.
35. T/O 286 W, 23 Feb. 1927.
36. T/O 8–234, 1 Oct. 1940.
37. T/O 8–611, 1 Apr. 1942.
38. T/O&E 8–611, 25 Aug. 1943.
39. T/O&E 8–500, 23 Apr. 1944.
40. T/O&E 8–500, 18 Jan. 1945.
41. T/O&E 10–118, 26 Sept. 1944, with Changes No. 1, 29 May 1945.
42. T/O 10–115, 15 Sept. 1942.
43. T/O&E 10–115, 30 Sept. 1944.
44. T/O&E 10–335, 4 Nov. 1944.
45. T/O 10–578, 4 May 1943.
46. T/O 10–217, 1 Apr. 1942.
47. T/O&E 10–217, 30 July 1943, with Changes No. 3, 19 July 1944.
48. T/O 10–260–1, 1 July 1942.
49. T/O&E 55–110–1, 20 Nov. 1943.
50. T/O&E 55–120–1, 13 May 1944.
51. T/O 1–800–1, 1 July 1941.
52. T/O&E 1–800–1, 26 July 1943. Note: Modifications of the table were published also, such as T/O&E 1–800–1S–2T, and T/O&E 1–800–1S–RS, and T/O&E 1–801–1.
53. T/O 1–400–1S, 13 July 1942. Note: Modifications of the table were published also, such as T/O&E 1–400–2S and T/O&E 1–400–3S.
54. T/O 1–450–1, 16 Dec. 1941.
55. FM 8–5, 12 Jan. 1942.
56. FM 8–5, May 1945.
57. FM 8–10, 27 Nov. 1940.
58. FM 8–10, 28 Mar. 1942.
59. FM 100–10, 29 Apr. 1942.
60. The Army Medical Bulletin No. 19, The Veterinary Service. Medical Field Service School, Carlisle Barracks, Pa., 1926.
61. WD Manning Table 8–1S–PC, 1 Sept. 1945.
62. Letter, Mr. Lincoln MacVeagh, U.S. Minister to Iceland, to Commanding General, U.S. Forces in Iceland, 19 June 1942. See also, General Orders No. 16, Headquarters, ETOUSA, 12 Feb. 1944, and General Orders No. 47, Headquarters, ETOUSA, 12 May 1944, awarding the Legion of Merit to Maj. F. A. Todd, Capt. H. J. Robertson, and Maj. R. B. Meeks.

CHAPTER IX

Functional Organization in the Middle East, Mediterranean (Formerly North African), and European Theaters

U.S. ARMY FORCES IN THE MIDDLE EAST

The Africa-Middle East area became a theater primarily of British strategic responsibility, and no American theater for combat operations was formed there. However, the U.S. Government, under its lend-lease program, supplied materiel to the Allied British forces which fought the *Afrika Korps*, and moved supplies to Russia through the overland and aerial routes that were contained in this area. Subsequently, these logistic support activities were taken over by U.S. military missions which were sent there during the prewar emergency periods. Some time after the United States had entered the war, on 16 June 1942, the foregoing activities were completely militarized under two theaterlike commands: USAFIME (U.S. Army Forces in the Middle East), and USAFICA (U.S. Army Forces in Central Africa). The former eventually absorbed the latter and, in September 1943, also assumed jurisdiction of another independent, theaterlike command, USAFIL (U.S. Army Forces in Liberia). The PGC (Persian Gulf Command) was established on 10 December 1943, as an entity separate from USAFIME, but was rejoined with it in the fall of 1945. Earlier that year, on 1 March 1945, the major theater headquarters was assigned jurisdiction over the few units and personnel of MTOUSA (Mediterranean Theater of Operations, U.S. Army) that remained in northwestern Africa; concurrently, its name was changed to USAFAMET (U.S. Army Forces, Africa-Middle East Theater). Each of the foregoing commands contained its own Army Veterinary Service organization.

The Army Veterinary Service with USAFIME had its start on 7 July 1942.[1] At that time, pursuant to a plan developed 6 months earlier by the medical officer with the original USMNAM (U.S. Military North African Mission), a veterinary officer arrived from the Zone of Interior at this theater headquarters location in Cairo, Egypt. The original military mission, it must be mentioned, was one of several such agencies which had come into this area before the active war period to coordinate U.S. lend-

[1] Maj. (later Lt. Col.) Edgerton L. Watson, VC, was the theater veterinarian until his departure on 22 February 1944, when Maj. Walter A. Lawrence was so designated. Following the latter's departure for return to the United States on 21 November 1945, Capt. Clark E. Burt, VC, commanding, 912th Veterinary Food Inspection Detachment, assumed duties as acting theater veterinarian.

lease supply and technical assistance for Russia and the British armies which were fighting the Nazi-Fascist military advances in North Africa. Another U.S. military mission was established in Iran, along the route in the Persian corridor or southern "backdoor" entrance into Russia. USMNAM, sometime after 7 December 1941, partially militarized its activities to form three area offices; namely Asmara (Eritrea), Heliopolis (Egypt), and Tel Aviv (Palestine). Then, on 16 June 1942, the militarization of American governmental operations in the areas was completed, these being organized under jurisdiction of the new USAFIME (*1*).

The formation of the theater command saw the final militarization of the USMNAM as the NASC (North African Service Command),[2] with headquarters at Gura, Eritrea, together, with its three area commands, and that of the Iranian Mission as the Iran-Iraq Service Command, with headquarters at Basra, Iraq. Each headquarters contained a medical section, but only the theater headquarters immediately gained the assignment of the veterinary officer who had arrived during July 1942. This theater organization lasted for only 2 months; on 11 August 1942, the three area subcommands were reorganized as Eritrea, Delta, and Levant Service Commands, respectively, and Iran-Iraq Service Command was renamed PGSC (Persian Gulf Service Command). Before the end of the year, on 7 December 1942, a fifth service command—Libyan Service Command—was established, with headquarters at Benghazi, Libya. During November 1942, these service commands were grouped under control of the new Headquarters, Services of Supply, USAFIME. By this date, the Army Veterinary Service included 13 officers and 17 enlisted personnel—a number that was generally adequate for assignment to all service commands. The senior veterinary officer formerly assigned to the theater headquarters medical section now was assigned to the new Headquarters, Services of Supply, but acted also at the previous theater level in a dual-status capacity. Actually, this did not last for a year before Headquarters, Services of Supply, was disbanded on 12 September 1943, and the office of theater veterinarian was reestablished.

At about the same time, the Middle East theater gained two army commands: USAFICA which now was reorganized as WASC (West African Service Command), with headquarters at Accra, Gold Coast, and USAFIL, with headquarters at Roberts Field, near Monrovia, Liberia. Later, on 10 December 1943, the Persian Gulf Service Command was transferred from theater control and was established as the separate, autonomous oversea command, Persian Gulf Command. Summarizing, as of the end of 1943, the veterinary staff organization included the officers on duty at the following subcommand headquarters: Eritrea Service Command; Delta Service Command; Levant Service Command; Benghazi Base Command and Tripoli Base Command, successors to Libyan Service Command, May 1943; West

[2] NASC, formed in June and disbanded during August 1942, must not be confused with the command by the same name that was established on 1 March 1945, covering the geographic area in northwestern Africa.

African Service Command; and U.S. Army Forces in Liberia. One of the greatest difficulties was the enormous distances between installations and the attendant scattering of veterinary personnel. Then, during the forepart of 1944, the subcommand structure was again changed wherewith Eritrea Service Command was redesignated EBC (Eritrea Base Command), and the Delta Service Command was expanded into the new, larger MESC (Middle East Service Command) which absorbed also the Levant, Benghazi, and Tripoli subcommands. Also, in May 1944, the Cairo Military District was established.

The larger share of veterinary personnel in the several base and service commands were assigned into space vacancies created by the theater's overhead allocations or were attached to diverse medical units. Only one unit, the 289th Quartermaster Refrigeration Company (Fixed), was actually authorized veterinary personnel, but this was inactivated in May 1944, approximately a year after its arrival in the theater. Then, on 10 February 1945, four veterinary food inspection detachments were activated and organized to improve the efficiency of personnel and to simplify the administration of veterinary activities: The 909th at Accra in the WASC; the 910th at Asmara in EBC; the 911th at Camp Russell B. Huckstep in MESC; and the 912th in the Cairo Military District. Another, the 76th Veterinary Food Inspection Detachment at Casablanca, French Morocco, was added 2 months later when, as will be noted, the North African area of the Mediterranean theater was absorbed by the Middle East theater.

Effective on 1 March 1945, USAFIME was renamed AMET (Africa-Middle East Theater). Concurrently, military activities and personnel remaining in French Morocco, Algeria, and Tunisia that were under jurisdiction of MTOUSA, that is, the latter's Mediterranean Base Section organization, were transferred to control of the newly redesignated theater and were reorganized as NASC (North African Service Command) with headquarters and the acting service command veterinarian located at Casablanca. With the cessation of the war in Europe, other changes soon were made in the composition of the theater's subcommands. The WASC was disbanded on 1 July 1945, its personnel and activities being added to the NASC. Then, on 1 October 1945, the PGC again became a service subcommand. Now, the major theater subcommands were: Middle East Service Command, Eritrea Base Command, U.S. Army Forces in Liberia, North African Service Command, and Persian Gulf Service Command. This organization was further reduced during the winter of 1945–46, and during May 1946 the theater was inactivated. The personnel and activities remaining in the area were assumed by the new DUSAME (Detachment, U.S. Army, Middle East) with headquarters at Cairo.

Throughout the war period, the principal activity of the Army Veterinary Service in the Middle East and Africa-Middle East theaters was the inspection of subsistence—both that consumed locally and the supply to the

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Allies. There were no U.S. military animals. However, in early 1943, approximately 25 or 30 horses were borrowed from the local British forces to mount a guard patrol at Camp Russell B. Huckstep, near Heliopolis, and for recreational riding at the rest camp at Tel Litwinsky, Palestine. During January 1945, two of the horses at Camp Russell B. Huckstep developed rabies, these animals apparently being bitten by a stray dog or jackal. Subsequently, a rabies control program was instituted with the vaccination of 17 personnel, quarantine of the stable area, destruction of stray animals, and the reiteration of a year-long order against the maintenance of animal pets on the camp area. Another disease of importance in military veterinary medicine was African horse sickness, a disease against which the horses at Camp Russell B. Huckstep were vaccinated in July 1945. The disease, reappearing in Egypt in 1942 for the first time since 1928, gradually spread northward and then to Palestine and Syria. In the fall of 1944, the senior veterinary officers of this theater and of MTOUSA cooperated with local British and Egyptian officials in an investigation of the disease. In connection with animal disease investigation, it may be noted that, on request through diplomatic channels, the Army Veterinary Service also conferred at Beirut with officials of the Government of Lebanon on the epizootic of hemorrhagic septicemia and swine erysipelas which caused the loss of more than a thousand hogs in 2 years. In another incident, during an Army veterinary inspection of hog slaughter at the municipal abattoir in Cairo on 3 June 1945, foot-and-mouth disease was discovered, and findings were reported to the Egyptian officials.

The greater part of the subsistence supply inspected by the Army Veterinary Service in the Middle East theater originated from the Zone of Interior. However, during the first year, beef and small quantities of fresh eggs were procured under reverse lend-lease from the British, and throughout the war period certain perishable foods were purchased from indigenous sources. In regard to the reverse lend-lease supply, the British at first made daily issues of beef of Australian and New Zealand origin to the forces in the Delta Service Command, but, after mid-1943 when the Army completed construction of its own refrigerated plant at Heliopolis, the beef was sent by railroad car direct from Port Said. The British forces also obtained foods of U.S. origin in connection with the Allied program for feeding civilians in the Balkan countries; in May 1944, their holdings of 50,000 tons of powdered milk were inspected by the Army Veterinary Service when it became evident that the British were planning its condemnation.

The local purchasing of subsistence for Army supply throughout the Africa-Middle East area was necessarily limited by the small quantities available and by the relatively low sanitary standards in the local food establishments. The products more commonly purchased were fish, fresh eggs, and poultry. The poultry was slaughtered and dressed in Cairo under

continuous Veterinary Corps supervision. Eggs were required to be individually candled or inspected prior to purchase; following an epidemic of diarrhea in an AAF (Army Air Forces) unit that was traceable to contaminated shell eggs, the Veterinary Corps also supervised their washing before procurement. In the Levant and Delta Service Commands, dairy herds were tested against tuberculosis infection, and a fresh milk supply was developed. Parallel with the foregoing activities, the Army Veterinary Service cooperated with the Quartermaster Corps in the development of food production projects, frequently supervising their operations. For example, at Camp Russell B. Huckstep, ice cream was manufactured for sale in the Army exchange system. As of July 1945, this manufacture totaled 14,100 pounds of ice cream, and another 21,600 pounds was produced under veterinary supervision at Casablanca. A number of pig farms also were established, to dispose of Army garbage and to add variety to the ration. At Decamere Compound, a Quartermaster abattoir was operated by veterinary personnel who also trained the Italian civilian laborers, improvised the equipment, and foraged the countryside with trucks in search for animals that could be purchased. Mention must be made that the Army Veterinary Service, beginning in 1945, extended its food inspection activities to the theater's supply of non-animal-origin foods.

Services of Supply, U.S. Army Forces in the Middle East

Headquarters, Services of Supply, USAFIME, was organized in November 1942 to coordinate the theater's service forces personnel and activities. The service forces subcommands which operated under this new headquarters included Eritrea, Delta, Levant, Persian Gulf, and Libyan Service Commands; these, of course, were changed from time to time. Each service command had its own assigned or attached staff veterinarian who reported on technical matters to the Services of Supply headquarters veterinarian (also, the theater veterinarian). Actually, this service forces organization was short lived, because it became somewhat superfluous during 1943, when planning for the invasion of Europe through the Balkan countries was canceled and the tactical and air commands departed for Europe (in September 1943). Thus, in the fall of that year, Headquarters, Services of Supply, was discontinued, and the service commands were returned to direct control by theater headquarters.

Eritrea Service Command.—The Eritrea Service Command, with headquarters at Asmara, and reduced to the status of a base command in February 1944, was provided veterinary services beginning in November 1942. During 1943–44, a veterinary officer was assigned also to its Decamere Compound.

Levant Service Command.—The Levant Service Command, with headquarters at Tel Aviv (later at Tel Litwinsky), was providing veterinary services through most of the period of its existence—September 1942 to mid-

January 1944. Levant Service Command and Eritrea Service Command both were not particularly large—the former mainly operating a rest camp and military leave center to the Holy Land and the latter acting as a rear base area during the early war period when Rommel's *Afrika Korps* threatened entry into the Nile Valley.

Libyan Service Command.—The Libyan Service Command acted as the supply base for the several U.S. units that supported the British Eighth Army's westward drive against Rommel in North Africa. Veterinary officers were assigned to the headquarters at Tripoli, Tripolitania, in February 1943, and somewhat later (in May 1943) to the Benghazi Base Command, Tripoli Base Command, and the forward area including Tunisia—the last three having succeeded the short-lived Libyan Service Command.

Delta Service Command.—The Delta Service Command was established in August 1942 and was reorganized in February 1944 as MESC, with headquarters initially at Heliopolis, and later (May 1945) at Camp Russell B. Huckstep. This service command had its own veterinarian, beginning in December 1942. The latter supervised the veterinary activities which were conducted at Camp Russell B. Huckstep, site of a large quartermaster depot, in the Suez Canal Ports Command (established in March-April 1943), and in the Alexandria Port Command—each with its own camp or port veterinarian; in early 1944, the Suez Canal Ports Command was absorbed by the larger Alexandria Port Command.

Middle East Service Command.—The Middle East Service Command was created in mid-February 1944 as the engroupment of the theater's former Delta, Levant, and Libyan Service Commands—now disbanded; its headquarters medical staff comprised a continuation of that of the Delta Service Command. The EBC was subordinated to it at first, but, in December 1944, the base command was reestablished as a separate theater command. Another separate command was the Cairo Military District, established in May 1944. The importance of the MESC, from an organizational viewpoint, is that it, with two minor area exceptions, and the Persian Gulf area comprised the original geographic area of the theater; also, before it was established, the Middle East theater had absorbed another, USAFICA, the latter now existing as the WASC (after September 1943). Both the MESC and the WASC had their own veterinary services.

U.S. Army Forces in Central Africa

The Central Africa theater, with headquarters at Accra, was established on 16 June 1942, concurrently with USAFIME. This comprised the original defense command for the bases along the southern trans-African air route which were being used by the ATC (Air Transport Command) to ferry lend-lease aircraft to Russia and the British forces. The veterinary service organization with the Central African theater was limited to the Veterinary Corps officer who was assigned to the 93d Station Hospital,

which arrived from the Zone of Interior at Dakar, French West Africa. Elsewhere, along the route of air bases through British West Africa, Nigeria, French Equatorial Africa, and Anglo-Egyptian Sudan that were used by the ATC, the latter's assigned veterinary personnel performed the necessary base veterinary services. When the enemy forces were pushed out of North Africa, the trans-African air-ferry route was moved northward to the Mediterranean coastline of Africa, so that the Central African theater no longer had a major military mission. Thus, on 12 September 1943, USAFICA was disbanded, and its activities were reorganized into the WASC, under the jurisdiction of USAFIME. During May of the following year, the station hospital-assigned veterinarian was relocated in Accra to assume the function as service command veterinarian; and, in February 1945, he also became commanding officer of the newly activated 909th Veterinary Food Inspection Detachment. Headquarters, WASC, was disbanded in July 1945, and the Accra base was transferred to the jurisdiction of NASC under the new name of Southern Town Command.

U.S. Army Forces in Liberia

The U.S. Army Forces in Liberia, with headquarters at Roberts Field, originated with the landing on 16 June 1942 of an Engineer regiment and the first echelon of Army Task Force 5889, aggregating 1,200 troops. The accompanying task force veterinarian was the first Army Veterinary Corps officer to locate on the African Continent during World War II (*2*). On 12 September 1943, the control over USAFIL was transferred to USAFIME, but this theater continued the former as a semiautonomous subcommand throughout the remainder of the war period. The office of the force veterinarian, or Roberts Field station veterinarian, was continued until 23 April 1944; during the next month and until 4 November 1945, veterinary activities—concerned with the inspection of foods—were conducted by a veterinary noncommissioned officer under the supervision of the surgeon. In one instance on record, a relatively large quantity of foods was lost when refrigerant gas could not be obtained to properly operate the refrigerated storage facilities. All meat and dairy products consumed in Liberia were received from the Zone of Interior.

North African Service Command

The North African Service Command (established on 1 March 1945 and disbanded in early 1946), with headquarters at Casablanca, was the continuation of Mediterranean Base Section, MTOUSA, when the latter's control over activities in French Morocco, Algeria, and Tunisia, were transferred to AMET.[3] At the service command headquarters level, veterinary

[3] The foregoing is not to be confused with the command of the same name, which did not have organic veterinary services, that existed in June-August 1942, and included military activities in Eritrea, Egypt, and Palestine.

matters were supervised by the commanding officer, 76th Veterinary Food Inspection Detachment. The NASC itself was divided into so-called Town Commands: Eastern, in Tunis, Tunisia; Center, in Algiers, Algeria; Western, in Oran, Algeria; and, after mid-1945, Southern, in Accra, when the WASC was disbanded.

Persian Gulf Command

The Persian Gulf Command was an independent oversea command during the period 10 December 1943 to 1 October 1945. Before and after this period, it was a major service forces subcommand of the Middle East and Africa-Middle East theaters. During the earlier history, it was identified under a succession of names: U.S. Military Iranian Mission, after 24 June 1942 as Iran-Iraq Service Command, and after 13 August 1942 as Persian Gulf Service Command, until it became an autonomous, theaterlike command. Veterinary officers were assigned to it first in November 1942, and eventually these were on duty in the various district and port areas, including the Ports Service (or Headquarters, 9th Port) at Khorramshahr, Iran; Gulf District, with headquarters at Basra and later at Ahwaz, Iran; Desert District, with headquarters finally located at Andimeshk, Iran; and Mountain District, with headquarters at Tehran, Iran. These stretched northward from the Persian Gulf, along a busy route for lend-lease supply to the Allied Russian armies. Military personnel and civilian contractors were rationed mainly on foods received from the United States, and infrequently these were supplemented by local procurements of fresh eggs, poultry, game, fish, and fruits and vegetables. The fresh meat supply from the local abattoirs was referred to as demonstrating "a studied neglect of sanitation" and thus were excluded from U.S. Army supply. Regarding the foods imported into the command, it was noted that—

> Extremely hot weather in this area presented a constant problem in preservation of subsistence. Meats of the pork luncheon type [i.e., canned] did not keep when exposed to temperatures of 100° to 120° which are relatively mild summer temperatures in Iran.
>
> Salted meat shipped in barrels was often improperly prepared before shipment overseas, and in many cases water evaporation caused spoilage. In one instance, 400 barrels of salt pork and brisket of corned beef were condemned because the water in the brine had evaporated.
>
> Mechanical refrigeration on ships was overtaxed in these areas and often failed prior to docking at the Persian Gulf ports. During the year [1943] 469,473 pounds of beef out of a shipment of 18,943,437 pounds were condemned due to failure of mechanical refrigeration on ships.
>
> Veterinary service was instrumental in recommending and supervising the construction of large underground storage cellars, which resulted in a marked saving of subsistence arriving from the United States.

Ninth Air Force and Air Transport Command

The veterinary service with the AAF (Army Air Forces) included that of the Ninth Air Force and that with elements of the ATC. The

latter had been operating its Africa-Middle East Wing through the theater since the start of lend-lease aid to the Russian armies and to the British Army which fought the German *Afrika Korps*; in December 1943, the wing gave origin to two separate wings: the North African Wing, mainly in the Mediterranean theater, and the Central African Wing, whose route of air-bases traversed through the Central African and the Middle East theaters. The latter, renamed Central African Division, ATC, as of January 1944 included two veterinary officers and four enlisted personnel. These acted as base veterinarians, food inspectors, and supervisors of local abattoirs, such as at Accra, at Kano, Lagos, and Maiduguri in Nigeria, and at El Fasher and El Geneina in Anglo-Egyptian Sudan. There were two veterinary officers, also, with the Ninth Air Force, which for about a year operated against enemy targets in northern Africa and central Europe. In the fall of 1943, this air force departed for the European theater.

MEDITERRANEAN (FORMERLY NORTH AFRICAN) THEATER

Operation TORCH, the assault and landings on the northwestern coastline of Africa, was carried out on 8–11 November 1942 by three task forces, totaling more than 100,000 Allied troops: The Western Task Force of U.S. troops convoyed from the Zone of Interior, landing in the vicinity of Casablanca; the Center Task Force, mainly made up of U.S. II Corps from the United Kingdom, landing in the Oran Sector of Algeria; and the British Eastern Assault Force, moving into Algiers. As of the end of December 1942, at least 10 Veterinary Corps officers belonging to the European theater were on duty with such units in North Africa as II Corps, 1st and 34th Infantry and 1st Armored Divisions, Special Group—Services of Supply, 2d Medical Supply Depot, 3d Port of Embarkation, Twelfth Air Force, and XII Air Force Service Command; another was assigned to AFHQ (Allied Force Headquarters) (*3*). Other units having assigned veterinary personnel that arrived in North Africa before this date included Veterinary Food Inspection Detachment "A," 2d Medical Laboratory, and the 68th and 282d Quartermaster Refrigeration Companies. The first campaign in North Africa (Algeria-French Morocco Campaign) was completed within 3 days of the landings of the task forces, but the Tunisia Campaign (starting on 12 November 1942) saw the continuing engagement of U.S. combat troops to mid-May 1943.

Allied Force Headquarters

When the foregoing veterinary units and personnel arrived on the coastal regions of French Morocco and Algeria, there was yet no theater of operations; NATOUSA (North African Theater of Operations, U.S. Army) was not formed until 4 February 1943. In the interim, they were a part of, and under the immediate jurisdiction of, the combined American-British military staff agency, AFHQ. This had been formed in London on 11

August 1942, had planned Operation TORCH, transferred location to Gibraltar and directed the assault landings that were made on 8 November 1942, and during December 1942 was separated from its earlier ties with the developing European theater. AFHQ included a medical section under the directorate of a British medical officer, but subdivided into a British component and a smaller American component. Before and immediately after the arrival of this AFHQ medical section in North Africa, there was no indication that there would be any direction or coordination of the task forces' veterinary services at this staff level. It is possible that the British medical director had no conception that the U.S. Army Veterinary Service was an operational element of the Medical Department—observing, of course, that the British military veterinary service is an independent corps, completely outside of the jurisdiction of the British medical corps. In any event, the U.S. medical component soon gained a short-lived or temporary addition to its original allocation of four personnel space vacancies that saw the assignment of a Veterinary Corps officer from the European theater on 28 December 1942. The assignment lasted only to 28 February 1943 when the added personnel space allocations were withdrawn, and no veterinary officer was reassigned to duty in AFHQ until March 1944.[4]

North African Theater

The developing need for U.S. Army staff control over the expanding American military activities and personnel was satisfied on 4 February 1943, with the establishment of NATOUSA. This organization marked the culmination of the European theater's jurisdiction in North Africa and was also the American counterpart to, or component paralleling, the local British theater—the two being combined to form the Mediterranean Theater of Operations, Allied. With this new organization in February 1943, those U.S. Army Medical Department officers who were then assigned to the AFHQ medical section now served in a dual duty status in the newly formed NATOUSA medical section. The latter, however, was augmented by the assignment of additional personnel. However, no veterinary officer was assigned to this theater medical section in a double duty status until March 1944 except for a very brief period of time in early 1943 (from 28 February to 9 March) and for the temporary duty assignment of a junior veterinary officer beginning sometime in the fall of 1943.[5]

During the first year of its existence, this United States theater headquarters generally assumed direct control over the several base section sub-

[4] AFHQ veterinarians included Lt. Col. S. B. Renshaw, VC, for the period, 28 December 1942 to 28 February 1943, and Col. J. E. Noonan, VC, for the period, 2 March 1944 to the end of the war.

[5] Colonel Renshaw was transferred from AFHQ to the theater headquarters on 28 February 1943, and then, on 9 March 1943, to Headquarters, Mediterranean Base Section. (*See also* footnote 4, above.) Lt. Col. D. L. Cady, VC, was attached to theater headquarters from a replacement depot in the period from 18 October 1943 to 3 April 1944; Colonel Noonan, assigned to AFHQ, served in the dual capacity also as theater veterinarian.

commands that were in existence, or were formed later, even though a theater services of supply organization was established on 15 February 1943. The base section subcommands included the Atlantic, in French Morocco; the Mediterranean, in Algeria; the Eastern, in Tunisia; the Island, on Sicily; the Northern, comprising Sardinia and Corsica; and the Peninsular, on the Italian mainland. They were not transferred to the operational control of Services of Supply, NATOUSA, until early 1944. Seemingly, the only operational controls regarding Medical Department activities that were originally assigned to this services of supply organization were medical supply. Summarizing, a critical situation existed for more than a year when there was no technical adviser to the theater surgeon on veterinary affairs, and, as will be noted later, most of the base sections had no permanently assigned veterinary officers on their medical staffs. In no major oversea theater was there a parallel to the hopeless, day-to-day operations of the Army Veterinary Service, particularly in its food inspection activities, in the North African theater in 1943.

Toward the close of 1943, the Veterinary Corps strength in the North African theater totaled 50 officers—these being assigned to units or attached from replacement depots for duty, as follows (*4*):

Attending Veterinarian, Surgeon's Office, North African Theater of Operations, U.S. Army

Veterinary Section, Public Health Subcommission, Allied Control Commission
Veterinary Section, 15th Medical General Laboratory
Attending Veterinarian, Surgeon's Office, Atlantic Base Section:
  Veterinary Detachment, 68th Quartermaster Refrigeration Company
  Attending Veterinarian, Quartermaster Section, Atlantic Base Section
Mediterranean Base Section:
  Veterinary Section, 4th Medical Laboratory
  Veterinary Detachment, 282d Quartermaster Refrigeration Company
  Attending Veterinary Detachment, 3d General Depot
  Attending Veterinarians (at depots), Quartermaster Section, Mediterranean Base Section
  Veterinary Section, 3d Port
  Attending Veterinary Section, Center District, Mediterranean Base Section
Eastern Base Section:
  Veterinary Food Inspection Detachment "C"
  Veterinary Section, 1st Medical Laboratory
  Veterinary Section, 7th Medical Supply Depot
  Attending Veterinarian, 2664th Quartermaster Depot
  Attending Veterinarians (depot), Quartermaster Section, Eastern Base Section
  Veterinary Section, 8th Port
Attending Veterinarian, Surgeon's Office, Island Base Section:
  Veterinary Food Inspection Detachment "T"
  Attending Veterinarian, Quartermaster Section, Island Base Section
  Veterinary Section, 10th Port
Peninsular Base Section:
  Veterinary Food Inspection Detachment "A"
  Veterinary Section, 2d Medical Laboratory
  Attending Veterinarian, Quartermaster Section, Peninsular Base Section
  Veterinary Section, 6th Port
Veterinarian, Fifth U.S. Army:
  Veterinarian, VI Corps
  Veterinary Sections, Surgeons' Offices, 3d, 34th, 36th, and 45th Infantry Divisions, and 82d Airborne Division

Attending Veterinarian, Surgeon's Office, North African Theater of Operations, U.S. Army—Continued

Veterinarian, Twelfth Air Force Service Command:
Adriatic Depot:
Veterinary Food Inspection Detachment "B"

The more singular defects in the Army Veterinary Service of the theater at the time were, as noted earlier, the lack of staff representatives in the theater surgeon's office and in the several base section medical offices, and the consequent separation of veterinary personnel and units without overall, unified technical supervision. Also, more than a third of the veterinary officers in the theater were located in replacement pools from which many were attached for duty at depots and ports. The foregoing situation officially came to command attention first during the fall of 1943 when, on request of the Surgeon, Headquarters, NATOUSA, and under orders of the theater commander, a veterinary officer surveyed the Army Veterinary Service. The Medical Department's request for the survey originated after the arrival (in September 1943) of 12 veterinary officers from the Zone of Interior on the basis of a Quartermaster Corps requisition. The requisition was based on AFHQ planning for U.S. military supervision of Allied French slaughterhouses in North Africa that would supply fresh meat to troops under a reverse lend-lease agreement. The Quartermaster Corps plan was not activated, nor was the Medical Department previously consulted.

During February 1944, the theater headquarters organization was changed so that many of its service forces activities were transferred to the year-old Services of Supply, NATOUSA. The veterinary officer who was serving as attending veterinary consultant to the theater surgeon, in a temporary duty status, was assigned full-time duty in the newly expanded Headquarters, Services of Supply, as staff veterinarian, on 3 April 1944. In the interim, or on 2 March 1944, a senior Veterinary Corps officer, newly arrived from the Zone of Interior, was assigned—pursuant to War Department orders—to the Medical Section, AFHQ, and thus became the theater veterinarian, in the Surgeon's Office, Headquarters, NATOUSA. At this time and continuing for the remainder of the active war period, veterinary personnel and activities were coordinated and supervised on a theaterwide basis. These technical or professional controls were extended equally to veterinary affairs in the service forces as well as to those in the field armies and the AAF, even though the AAF was under the command of AFHQ (and not of the American theater headquarters which had only logistic support responsibilities to the ground troops and air forces).

The significance of the aforementioned 12 veterinary officers was the fact that they were necessarily placed in replacement pools or depots from which they were reassigned in a temporary duty status to existing medical, quartermaster, and port units and organizations. There were no immediate position vacancies available to which they could be permanently assigned. Along with this, there were mis-assignments, assignments which would have best been made with more senior officers, and assignments which required

specially trained personnel. However, this personnel situation became even less tolerable before it was improved—with the 2d Cavalry Division arriving at Oran in late March 1944, and its 20 officers forming another pool (under the designation of Headquarters Troop, 5th Cavalry Brigade). Basically, these personnel were needed to augment the veterinary food inspection service and to satisfy the developing requirements for veterinary animal services in the tactical units and quartermaster remount operations. Thus, in the general reorganization of veterinary affairs—impetus being given to this by the new Office of Theater Veterinarian—the "replacement pool" concept of temporary assignments to conduct an efficient theater veterinary service was replaced by the organization of appropriate units and the development of recognized position vacancies in organizations to which personnel were permanently assigned. While the foregoing personnel situation existed to a degree in other theaters, during the first year or so of the war period, there was no other major theater in which it persisted as long as it did in the North African theater. Subsequently, before the end of 1944, the theater's veterinary service was augmented by the activation of 12 veterinary food inspection detachments and a separate veterinary company, and veterinary officers were permanently assigned to a number of other units and organizations.

As of 1 June 1944, the functional organization of the Army Veterinary Service in the North African theater included:

Theater Veterinarian, Surgeon's Office, Headquarters, North African Theater of Operations, U.S. Army

Veterinary Section, Public Health Subcommission, Allied Control Commission
Veterinary Section, 15th Medical General Laboratory
Veterinary Section, 1st Medical Laboratory
Veterinarian, Surgeon's Office, Headquarters, Services of Supply:
  Mediterranean Base Section:
    Veterinary Section, 4th Medical Laboratory
    Veterinary Detachment, 282d Quartermaster Refrigeration Company
  Veterinary Section, 2604th Quartermaster Depot (Overhead)
  Veterinary Detachment, 3d Port
  Veterinarian, Surgeon's Office, Center District:
    6734th Medical Platoon
  Veterinarian, Surgeon's Office, Eastern Base Section:
    Veterinary Food Inspection Detachment "C"
    Veterinary Detachment, 8th Port
  Veterinarian, Surgeon's Office, Island Base Section:
    Veterinary Detachment, 10th Port
  Veterinarian, Surgeon's Office, Northern Base Section:
    Veterinary Food Inspection Detachment "T"
  Veterinarian, Surgeon's Office, Peninsular Base Section:
    Veterinary Food Inspection Detachment "A"
    Veterinary Detachment, 68th Quartermaster Refrigeration Company
    Veterinary Section, 6742d Quartermaster Remount Depot
    Veterinary Section, 6th Port
Veterinarian, U.S. Fifth Army:
  Veterinary Section, 2d Medical Laboratory
  17th Veterinary Evacuation Hospital
  Veterinary Section, Surgeon's Office, VI Corps
  Veterinary Detachment, 601st Field Artillery Battalion

Theater Veterinarian, Surgeon's Office, Headquarters, North African Theater of Operations, U.S. Army—Continued

Veterinarian, U.S. Fifth Army—Continued
- Veterinary Detachment, 602d Field Artillery Battalion
- Veterinary Sections, Surgeon's Offices of the 1st Armored, and the 3d, 34th, 36th, and 45th Infantry Divisions

Veterinarian, Army Air Forces Service Command, Mediterranean Theater of Operations:
- Veterinary Section, I Air Force Service Command
- Veterinary Section, XII Air Force Service Command
- Veterinary Section, XV Air Force Service Command

Adriatic Depot:
- Veterinary Food Inspection Detachment "B"

Mediterranean Theater

Soon after the successful landings on the southern coast of France (Operation ANVIL-DRAGOON) that marked the Southern France Campaign (15 August to 14 September), the theater organization was changed, as were its geographic boundaries. Approximately 25 veterinary officers accompanied the Seventh U.S. Army and the supporting base section subcommands going into southern France from the North African theater. Effective on 1 November 1944, NATOUSA was redesignated MTOUSA. In the interim, as will be noted, the original Services of Supply was reorganized under the new designation of Communications Zone—first of NATOUSA and then of MTOUSA, but, on 20 November 1944, the Communications Zone was discarded from the theater organization. Concurrently, Headquarters, MTOUSA, resumed full and direct operational control over the existing base sections—a situation somewhat comparable to that before February 1944. In northwestern Africa there was the newly consolidated Mediterranean Base Section; on Corsica and Sardinia, the Northern Base Section; and below the combat area of the Fifth U.S. Army in western Italy, the Peninsular Base Section—each with its own veterinary service organization. In addition, the theater veterinarian dealt with the army veterinarian, Fifth U.S. Army, and the veterinary elements of the AAFSC (Army Air Forces Service Command); also, the theater veterinarian acted at the level of AFHQ and with the veterinary CA/MG (Civil Affairs and Military Government) officer assigned to Allied Commission, Italy.

At the beginning of 1945, the Army Veterinary Service—now approximating a strength of 37 officers and more than 80 enlisted personnel—was well distributed throughout the base sections, Fifth U.S. Army, and AAF, as follows:

Theater Veterinarian, Surgeon's Office, Headquarters, Mediterranean Theater of Operations, U.S. Army (also Medical Section, Allied Force Headquarters)

Veterinary Section, Public Health Subcommission, Allied Commission

Veterinary Section, 15th Medical General Laboratory

Mediterranean Base Section:
- 76th Veterinary Food Inspection Detachment
- Veterinary Section, 3d Port

Theater Veterinarian, Surgeon's Office, Headquarters, Mediterranean Theater of Operations, U.S. Army (also Medical Section, Allied Force Headquarters)—Continued

Northern Base Section:
- 77th Veterinary Food Inspection Detachment

Veterinary Section, Surgeon's Office, Peninsular Base Section:
- 66th, 67th, 68th, 69th, 71st, 73d, 74th, 75th, and 889th Veterinary Food Inspection Detachments
- Veterinary Detachment, 282d Quartermaster Refrigeration Company
- Veterinary Detachment, 6742d Quartermaster Remount (Overhead)
- Veterinary Section, 8th Port
- Veterinary Section, 10th Port
- 2698th Technical Supply Regiment

Rome Area Command:
- 72d Veterinary Food Inspection Detachment

Veterinarian, Surgeon's Office, Fifth U.S. Army:
- Veterinary Section, 2d Medical Laboratory

Army Air Forces Service Command, Mediterranean Theater of Operations:
- 6565th, 6566th, and 6567th Veterinary Detachments (Air Force Overhead)

Adriatic Depot:
- 70th and 888th Veterinary Food Inspection Detachments

Equally as important was the fact that the theater's replacement depots or pools now had only 1 veterinary officer; 3 months earlier there were 16 officers in such depots or pools, of which number 12 were attached to units for duty.

During the early months of 1945, the Veterinary Corps officer strength was almost doubled by the arrival of the 10th Mountain Division, but there was little change on 1 March 1945 when the theater's personnel and activities remaining in North Africa were transferred to the jurisdiction of the newly expanded (and redesignated) USAFAMET. On 1 May 1945, or just before the German armies in Italy capitulated, the Army Veterinary Service in the Mediterranean theater approximated 74 officers and 300 enlisted personnel assigned as follows:

Theater Veterinarian, Surgeon's Office, Headquarters, Mediterranean Theater of Operations, U.S. Army (also Medical Section, Allied Force Headquarters)

Veterinarian, Public Health Subcommission, Allied Commission

Veterinary Section, 15th Medical General Laboratory

Veterinary Section, Surgeon's Office, Peninsular Base Section:
- 66th, 67th, 68th, 69th, 71st, 73d, 74th, 75th, 77th, and 889th Veterinary Food Inspection Detachments
- 643d and 644th Veterinary Evacuation Detachments
- 2604th Veterinary Station Hospital (Overhead)
- 2605th Veterinary General Hospital (Overhead)
- Veterinary Detachment, 282d Quartermaster Refrigeration Company
- Veterinary Detachment, 2610th Quartermaster Remount Depot
- Veterinary Detachment, 6742d Quartermaster Remount (Overhead)
- Veterinary Section, 8th Port
- Veterinary Section, 10th Port
- Veterinary Section, 2698th Technical Supervision Regiment

Rome Area Command:
- 72d Veterinary Food Inspection Detachment

Adriatic Base Command:
- 70th and 888th Veterinary Food Inspection Detachments

Veterinarian, Surgeon's Office, Fifth U.S. Army:
- Veterinary Section, 2d Medical Laboratory

Veterinarian, Surgeon's Office, 10th Mountain Division:
- Veterinary Company, 10th Mountain Medical Battalion

Theater Veterinarian, Surgeon's Office, Headquarters, Mediterranean Theater of Operations, U.S. Army (also Medical Section, Allied Force Headquarters)—Continued

Veterinarian, Surgeon's Office, Fifth U.S. Army—Continued
Veterinarian, Special Troops
Veterinary Sections, 85th, 86th, and 87th Mountain Infantry Regiments
Veterinary Sections, 604th and 605th Field Artillery Battalions
Veterinary Section, 126th Mountain Engineer Battalion
Army Air Forces Service Command, Mediterranean Theater of Operations:
6565th, 6566th, and 6567th Veterinary Detachments (Air Force Overhead)

After the close of the Po Valley Campaign (5 April to 8 May 1945) which had ended with the surrender of the German armies in Italy, the Army Veterinary Service prepared its units for redeployment to the Pacific theater or inactivation, and for retrenchment within the theater. Also, six food inspection detachments were newly activated and organized for redeployment; and an additional six were improvised for continued use in the theater until the quartermaster subsistence stockpiles were disposed of. The first group comprised the 476th through the 481st Veterinary Food Inspection Detachments; the latter were the 6645th, 6646th, and 6647th Veterinary Food Inspection Detachments (Provisional) in the Peninsular Base Section, the 6648th with Fifth U.S. Army, the 6649th in the Rome Area Command, and the 6650th in the Adriatic Base Command. During October 1945, the theater was separated from AFHQ, and the former's headquarters medical section began to transfer its workload to the Surgeon's Office, Peninsular Base Section (fig. 20).

The accomplishments of the Army Veterinary Service in the Mediterranean theater are about evenly divided between those relating to the inspection of foods and the veterinary service with animals. The latter had a small beginning in the combat divisions in North Africa and then in Sicily, but it was not until after the Fifth U.S. Army reached the mountainous areas in southern Italy that animals—their procurement, and their professional care and treatment—were accorded full recognition. By December 1943, that army's combat divisions had obtained and were utilizing more than a thousand horses and mules, and another 600 were being processed in remount depots located behind the combat area, in the Peninsular Base Section. By mid-1944, most of the combat divisions had given up their animals as U.S.-supervised Italian pack trains became available; another 2,000 mules and horses were assembled in the Peninsular Base Section remount depots. (Including the French Expeditionary Corps, which utilized many more animals than the U.S. combat divisions and accompanying Italian Army mule pack companies, the Fifth U.S. Army animal strength actually reached a peak strength, in May 1944, of 12,659 horses and mules.) Altogether, there were more than 5,000 U.S. and Italian animals for which an evacuation chain and system of veterinary hospitalization was improvised. Veterinary evacuation hospitals and evacuating companies and detachments



FIGURE 20.—Headquarters building and row of box stalls at the 2605th Veterinary General Hospital, Mirandola, Italy, 9 May 1945.

were organized or were brought into the theater, and Italian veterinary hospital units under U.S. supervision were deployed to operate at remount depot areas and maintain a system of animal evacuation for sick and wounded animals. By the end of the active war period, more than 9,000 sick and wounded horses and mules were treated or cared for by the Army Veterinary Service. Regarding the inspections of subsistence supplies, only the statistical data for the entire theater are available for 1944 (table 19). The rejection of approximately 5 million pounds comprises 0.14 percent of the quantities of foods passed, and about 0.73 percent of the foods that were known to have been issued to troops (fig. 21). The rates of rejections in foods of nonanimal origin and field rations were double that of the meat and dairy products. In the Mediterranean theater, as in most oversea theaters during World War II, the Army Veterinary Service officers extended their meat and dairy hygiene services and also inspected foods of nonanimal origin.



FIGURE 21.—Veterinary personnel inspecting milk supplies in Milan, Italy, June 1945. Overseas, where the supplies were inadequate to meet civilian needs and the prevailing standards of sanitation would not satisfy Army requirements, milk was not procured locally.

TABLE 19.—*Veterinary inspections of food in the Mediterranean theater, 1944*

Organization	Total		Meat and dairy products		Field rations and foods of nonanimal origin	
	Passed	Rejected	Passed	Rejected	Passed	Rejected
	Millions of pounds	*Millions of pounds*	*Millions of pounds*	*Millions of pounds*	*Millions of pounds*	*Millions of pounds*
Ports	1, 942. 08	0. 42	1, 034. 90	0. 38	907. 18	0. 04
Base sections	1, 292. 46	4. 15	1, 119. 71	2. 06	172. 76	2. 10
AAF bases	278. 60	. 35	255. 92	. 34	22. 62	. 01
Total	3, 513. 14	4. 92	2, 410. 53	2. 78	1, 102. 56	2. 15

Services of Supply, North African Theater

The Army Service Forces organization—or Services of Supply—had a Medical Department role far different from that of similar organizations in other theaters when it was established on 15 February 1943. For approximately a year, it only controlled medical supply; all other Medical Department activities and personnel in the base subsections were under

the direct operational control of Headquarters, NATOUSA. On 20 February 1944, with a reorganization of the theater, the base subsections and Medical Department activities within them were reassigned from the jurisdiction of the theater headquarters to the theater services of supply—this being a more orthodox arrangement. At this time there were six base subsections: Atlantic, Mediterranean, Eastern, Island, Northern, and Peninsular Base Sections. Base veterinary services were generally well established at quartermaster subsistence depots and in the ports; many of the base headquarters medical sections, however, operated without staff veterinary officers.

The first two of the aforementioned base sections were evolved from services forces personnel and units attached to the original Western Task Force (from the Zone of Interior) and the Center Task Force (from the European theater). The Center Task Force contained the so-called Special Group, Services of Supply, which was evolved on 8 December 1942, as the staff of Mediterranean Base Section, with headquarters at Oran. A veterinary officer had accompanied this base section to North Africa, and, in March 1943, he was replaced by another, who after his arrival in North Africa had been moved downward from AFHQ to the theater headquarters and thence to this base section headquarters.[6] Following the latter's departure (hospitalization due to an injury) in August 1943, no veterinary officer was reassigned to full duty with the medical section of Mediterranean Base Section during the remainder of its existence in the Mediterranean theater. The second subcommand, Atlantic Base Section, was evolved from Services of Supply, Western Task Force—being established on an operational status on 30 December 1942, with headquarters at Casablanca. A senior veterinary officer had accompanied this service forces group from the Zone of Interior, but, after February 1943, the nominal base section veterinarian vacated his position for another in the headquarters staff (as G–4, for supply) and was replaced by a succession of junior officers, some being only attached or on additional duty assignment. The foregoing is explained in detail to show the unfortunate events in 1943 that resulted in the absence of an assigned veterinarian in the theater surgeon's office until March 1944.

On 3 April 1944, when a veterinary officer was assigned to the staff of this service forces organization, the major veterinary units or organizations with assigned veterinary personnel were four veterinary food inspection detachments, a medical laboratory, two quartermaster refrigeration companies, three ports, and a provisional remount organization. In July 1944, a request for augmentation of the food inspection service was partially granted when 12 veterinary food inspection detachments were activated pursuant to War Department authorization; the theater granted special authorization for their vehicular transport and office equipment. By November

[6] See footnotes 4 and 5, p. 250.

1944, these detachments, and the original four which had arrived earlier from the Zone of Interior, were at station, as follows:

Detachment	*Station*
66th	Leghorn, Italy
67th	Piombino, Italy
68th	Bagnoli, Italy
69th	Cecina, Italy
70th	Foggia, Italy
71st	Naples, Italy
72d	Rome, Italy
73d	Marcianise, Italy
74th	Leghorn, Italy
75th	Algiers, Algeria
76th	Casablanca, French Morocco
77th	Ajaccio, Corsica
887th (formerly "A")	Southern France
888th (formerly "B")	Bari, Italy
889th (formerly "C")	Marcianise, Italy
890th (formerly "T")	Southern France

With the pending plans for invading southern France, the Services of Supply redirected its efforts for supporting the landings of the Seventh U.S. Army and French First Army; on 1 October 1944, this was renamed Communications Zone. On 20 November 1944, Communications Zone, MTOUSA, with headquarters location at Dijon, France, was disbanded, but its personnel and activities were transferred to the jurisdiction of the European theater (and therein continued Southern Line of Communications). Similarly affected by this transfer were two of its base subsections: Coastal Base Section (later called Continental Base Section) and the Delta Base Section. Now the base sections were returned to operational control of theater headquarters. Actually, only three of the six bases existing in early 1944 remained: The Mediterranean Base Section, which had absorbed the personnel and activities formerly assigned to the Atlantic and the Eastern Base Sections, these being disbanded on 15 November 1944; the Northern Base Section; and the Peninsular Base Section. The Island Base Section was closed out in mid-July 1944.

Atlantic Base Section.—The Atlantic Base Section in French Morocco was established, as noted earlier, in December 1942, taking over service forces activities as the combat units of the original Western Task Force departed for the Tunisia Campaign. It was one of three such commands set up in North Africa. After mid-1943, when the combat area moved to Sicily and then to the Italian mainland, veterinary activities in this base section were rapidly cut back, and by the spring of 1944, only one Veterinary Corps officer remained—eventually taking over the command of the newly organized 76th Veterinary Food Inspection Detachment at Casablanca. During the year 1944, more than 18 million pounds of canned jams, shell eggs, and fresh fruits and vegetables were inspected for procurement—most of

this being transshipped for supplying troops in Algeria. On 15 November 1944, the command was disbanded, and its personnel and activities were transferred to the jurisdiction of the Mediterranean Base Section.

Mediterranean Base Section.—The Mediterranean Base Section was the centrally located one of the three Army Service Forces base sections set up in North Africa, taking over the base units and personnel formerly assigned to Center Task Force. Its activities in the Algiers area were organized under the designation of Center District during the period from June 1943 to May 1944. After the Seventh U.S. Army invaded Sicily and the Fifth U.S. Army landed on the Italian peninsula, the base section was depleted of most of its veterinary personnel; this exodus continued through the early months of 1944. Food inspection services including salvage operations were conducted at ports, quartermaster ration dumps, and cold storage installations; also, lend-lease foods for the French were inspected, as were local ice cream plants, abattoirs, and fish piers. After 15 November 1944, when the Atlantic and the Eastern Base Sections were disbanded, the Mediterranean Base Section took over the personnel and activities remaining in North Africa; its headquarters was moved from Oran to Casablanca in December 1944. There the 76th Veterinary Food Inspection Detachment's commander acted in an additional duty status as base section veterinarian. On 1 March 1945, the base section was redesignated as NASC, which was transferred from the jurisdiction of Headquarters, MTOUSA, to USAFAMET.

Eastern Base Section.—The Eastern Base Section, established on 22 February 1943—with headquarters locations at Constantine, Algeria, at Mateur, Tunisia, and finally at Bizerte, Tunisia—was in the immediate rear of the U.S. II Corps and other combat forces during the Tunisia Campaign (17 November 1942 to 13 May 1943) and was the major supply base in North Africa for the Sicily Campaign. Its headquarters medical section did not include a base section veterinarian except for a brief period in the summer-fall of 1944. After the start of the campaigns on the Italian peninsula, its importance was lessened considerably. By the spring of 1944, almost all veterinary personnel had departed—including those on duty at the quartermaster depots in Bizerte and the Bône-Philippville, Tunisia, area, with the 8th Port, with the 68th Quartermaster Refrigeration Company at Constantine, and with the 1st Medical Laboratory. The Veterinary Food Inspection Detachment "C" finally departed during June 1944 from its station at Mateur. After a lapse of approximately 2 weeks, a veterinary officer arrived on temporary duty status to assist in the close out of the subsistence stockpiles in depots at Tunis and Bizerte, but then he too departed in September 1944. On 15 November 1944, Eastern Base Section was disbanded, and such personnel and activities as remained were absorbed by the expanding Mediterranean Base Section.

Island Base Section.—The Island Base Section was established with headquarters at Palermo, approximately 2 weeks after the end of the active campaign for Sicily, or on 1 September 1943. It was originated as the 6625th Base Area Group which had accompanied the Seventh U.S. Army and had assumed administrative jurisdiction over all service units on the island before the end of 1943. As of January 1944, the base section's veterinary service included the base veterinarian (in the surgeon's office), the 10th Port veterinarian, and Veterinary Food Inspection Detachment "T"—the latter having been transferred from the Seventh U.S. Army in October 1943. There was no large assemblage of veterinary personnel here, because the African bases, rather than Sicily, remained the major base for the early operations on the Italian peninsula. On 15 July 1944, Headquarters, Island Base Section, was disbanded. The base section veterinary service was limited to the inspection of foods at ports and at quartermaster ration dumps and cold storage plants; sizable quantities of captured foods were released following inspection. However, on account of the prevailing insanitary conditions, no food procurement program was set up.

Northern Base Section.—The "land-carrier" islands of Corsica and Sardinia, which were used by the Twelfth Air Force and as a troop concentration area for the invasion of southern France, came under the Northern Base Section command on 1 January 1944, with headquarters at Ajaccio. AAF veterinarians at first provided the needed inspection services of foods handled at the port and depots at Ajaccio (also at Bastia and Casamozza, Corsica), and at Cagliari, Sardinia (and at Decima, Aligliero, and Maddalena). Sardinia, captured from a surprised German-Italian garrison, also comprised a source for approximately 1,600 pack animals that were procured and shipped to the Fifth U.S. Army, between December 1943 and May 1944, by Army veterinarians detailed there for that purpose. There was no base section veterinarian, but in July-August 1944, two veterinary food inspection detachments were assigned—the 77th to Corsica, remaining there until the spring of 1945; and the 74th to Sardinia, but departing some few months after arrival. The Northern Island Base Section was closed out in May 1945.

Peninsular Base Section.—On 1 November 1943, or less than 2 months after the Allied Armies landed on the Italian mainland, the Peninsular Base Section set up headquarters at Naples; its medical section did not have a permanently assigned veterinarian until after mid-1944. This headquarters was organized as the 6665th Base Area Group at Casablanca, under the direction initially of the Fifth U.S. Army. As of January 1944, its veterinary units and units with assigned veterinary personnel—totaling 13 officers—included a food inspection detachment, a medical laboratory, a medical supply depot, a provisional quartermaster remount depot organization, a port, and a U.S.-supervised Italian Army veterinary hospital unit. This base section veterinary service expanded rapidly during the first 6 or

7 months of 1944 as the Fifth U.S. Army pushed northward along the western side of the Italian peninsula. Another food inspection detachment, medical laboratory, two quartermaster refrigeration companies, and two port units arrived, and several new food inspection detachments were organized. Other veterinary personnel arrived later. As of September 1944, the veterinary service of the Peninsular Base Section approximated 17 officers and 61 enlisted personnel, but, by that date, some personnel and units had already departed or were committed to Operation ANVIL-DRAGOON. By this date, the Peninsular Base Section had become the largest and the most important Service Forces base section organization in the Mediterranean theater.

The base section's veterinary service with animals had its origin with the Fifth U.S. Army's demands for pack animal transport. Early in the winter of 1943–44, the base section quartermaster leaned heavily on veterinary officers to assist in the procurement of animals from the Italian countryside and of Italian army mules from Sardinia, and in the operation of remount depots and the processing of animals and outfitting of pack trains. The sick and wounded animals of the frontline troops were treated in the remount depot veterinary dispensaries set up at Santa Maria, Persano, and Bagnoli, Italy—these later relocating at Grosseto and Pisa, Italy; also, an Italian Army veterinary hospital organization was set up under U.S. Army veterinary supervision, but this was found to be unsatisfactory to the needs. Later, in the fall of 1944, the 6742d Quartermaster Remount Depot (Overhead), which had been improvised in early 1944 and was operating the depot system in the Peninsular Base Section, was divided. The ½–6742d Quartermaster Remount Depot (Overhead) moved into southern France where it became the 6835th Quartermaster Remount Depot under the jurisdiction of the European theater, and the 6742d Quartermaster Remount Depot (Overhead)–½, which remained. Another provisional organization, the 2610th Quartermaster Remount Depot—formed in January 1945—replaced the latter after V–J Day. There were no Services of Supply veterinary hospitals in the Peninsular Base Section to relieve the Fifth U.S. Army of its sick and wounded animals until after the spring of 1945. At that late date, the 2604th Veterinary Station Hospital (Overhead) and the 2605th Veterinary General Hospital (Overhead) were organized locally; also, the Italian Army's 1st Veterinary Station Hospital and 2d Veterinary General Hospital were integrated into the base section's animal evacuation and hospitalization system. Transportation of hospital cases of animals was provided by the 643d and 644th Veterinary Evacuation Detachments which were activated and organized within the Mediterranean theater in mid-March 1945.

The veterinary food inspection services were continuous from the unloading docks of the ports, to the cold-storage plants and base section depots to the railheads and truck heads and issue dumps behind the combat troops. All sorts of food were inspected for sanitary condition and suita-

bility for shipment. A major program was developed to lessen food losses encountered by improper storage and rough handling; and a system of sorting the good from the cases of damaged or deteriorated items accomplished much to conserve the theater's subsistence supply, particularly at the ports and depots. In a generalization of the subsistence supply, the theater veterinary service noted—

> It is believed that the subsistence shipped to this theater from the Zone of Interior has been of remarkable high quality. Practically all rejections of such subsistence have been the result of damage in handling, shipment and storage. The one notable exception to this has been canned milk. A considerable quantity of this product has been lost because of faulty cans and bacterial growth in the milk. Specifications for the milk cans have been changed recently, and the resulting product has been much more satisfactory.
>
> Throughout the campaign, the base sections have taken over food dumps left behind by the advancing Fifth U.S. Army. Such dumps have consistently yielded heavy rejection rates. Army agencies apparently issued only full cases, and simply stacked and left all broken cases and loose cans. C-ration cases were commonly found in use as dunnage, and weather protection was often insufficient or entirely absent. These conditions combined to yield great amounts of damaged subsistence which were taken over by SOS agencies, but which subsequently had to be discarded as unfit for human consumption.
>
> Other heavy losses were suffered because of the use of subsistence as "Flatting" in ships carrying heavy equipment. Tanks, landing mats and artillery crushed cases of canned goods severely. This practice has been discussed with the Quartermaster and steps have been taken to discontinue it.
>
> A large amount of perishable subsistence has been lost as a result of methods that were employed in the stowing of refrigerator ships. Supply ships arriving in this theater are ordinarily partially unloaded at several different ports. In many cases, it has been found necessary to unload, reload, or shift cargo not intended for the particular port in order to reach those portions of the consignment which are to be unloaded. This has resulted in excessive handling and exposure of perishable subsistence with consequent loss of condition before its arrival at the final destination. Repeated efforts have been made, in cooperation with the Quartermaster, to have the refrigerator ships, leaving the Zone of Interior for this theater, loaded in such a manner that the consignment for each successive port of call is available without moving other cargo. To date, these efforts have met with little success, but they are being vigorously continued by means of cables, letters and conferences, both personal and via teletype.

Subsequently, during September 1944, the major veterinary principles for the care and preservation of subsistence supplies were set forth in a command letter that was circulated throughout the Services of Supply organization (*5*).

Other base subcommands.—There were a number of other minor commands in the Mediterranean theater and another two base sections which were transferred to the European theater. The latter were the Coastal Base Section (later redesignated Continental Base Section, and finally as Continental Advance Section) organized in July 1944, and the Delta Base Section, which was formed in October 1944. Both were established by Communications Zone to support the advances of the Sixth Army Group in southern France and to operate the rear bases. On 20 November 1944,

these were transferred to the European theater. Then, there was another subcommand located within the geographic boundaries of Peninsular Base Section; namely, Rome Area Command, later referred to as Rome Area. This was set up in July 1944 under the direct jurisdiction of theater headquarters, and the 72d Veterinary Food Inspection Detachment was assigned thereto later that year. In mid-1945, the food inspection activities in the Rome Area were taken over by the 6649th Veterinary Food Inspection Detachment (Provisional). Another separate subcommand comprised the U.S. Service Forces for personnel and activities in the Bari area in southeastern Italy. Initially, these were AAF controlled, and generally referred to as the Adriatic Depot. Veterinary Food Inspection Detachment "B" (later redesignated the 888th) was assigned there in the fall of 1943, and, after mid-1944, the newly formed 70th Veterinary Food Inspection Detachment was assigned. On 28 February 1945, these detachments, along with other Service Forces units and organizations in the Bari area, were transferred from the control of the AAF/MTO (Army Air Forces, Mediterranean Theater of Operations) and were reorganized as the theater subcommand called Adriatic Base Command. Soon after the cessation of hostilities, the inspection workload was taken over by the 6650th Veterinary Food Inspection Detachment (Provisional), and, on 31 October 1945, Adriatic Base Command was closed out. There were also the Azores Command, established in March 1944 and later that year transferred to the jurisdiction of the Eastern Defense Command of continental United States, and the Military Headquarters, Balkans, which was organized in February 1945 and disbanded soon after V–E Day. They had no assigned veterinary personnel, however.

Fifth and Seventh U.S. Armies

The major Ground Forces units in the North African or Mediterranean theater were the II Corps, the Fifth U.S. Army, and the Seventh U.S. Army. The II Corps comprised the command element of the Center Task Force that landed in North Africa in November 1942. Though assigned to the Fifth U.S. Army, which was activated in January 1943, the II Corps was deployed more or less independently for short periods of time, with the British forces in the Tunisia Campaign, and with the Seventh U.S. Army in the Sicily Campaign. The corps headquarters moved into the campaigns on the Italian peninsula as a Fifth U.S. Army element and continued as such until the end of the war. On its initial arrival from the European theater, the Headquarters, II Corps, medical section included a staff veterinary officer.

Headquarters, Fifth U.S. Army, was organized during January 1943, with headquarters at Oudjda, French Morocco; personnel and units from the Center and Western Task Forces and from the Zone of Interior were included in its early composition. A veterinary officer was added to the

army surgeon's office early in the year. On 9 September 1943, the army elements invaded the Italian mainland near Salerno and did not stop in the advances northward until the Germans capitulated in early May 1945; there were five major campaigns: Naples-Foggia, 9 September 1943 to 21 January 1944; Anzio, 22 January to 24 May 1944; Rome-Arno, 22 January to 9 September 1944; North Apennines, 10 September 1944 to 4 April 1945; and Po Valley, 5 April to 8 May 1945. During the first winter, most of the combat divisions had their own division veterinarians and retained them primarily for the purpose of developing and maintaining animal pack trains. The latter were indispensable where only trails and broken roads linked the frontline outposts, which were "holed-up" on the sides of the southern Apennines, with the ammunition dumps and ration depots in the valleys. Also, human casualties were evacuated by pack animals. Gradually, Italian Army mule pack companies, some being brought from Sardinia, were attached to the divisions to replace the improvised divisional trains, but even so, their animal casualties were taken care of by U.S. Army veterinary personnel or were under their supervision.

Some few of the animals originally were cared for by a provisional veterinary hospital and a French Army veterinary ambulance company, but early in 1944, three veterinary evacuation hospitals came into the Fifth U.S. Army area; namely, Italian 110th, Italian 130th, and U.S. 17th—the latter recently arriving from the Zone of Interior. For a short period of time in the summer of 1944, the 45th Separate Veterinary Company was assigned to the army, but in the fall of that year, both it and the 17th Veterinary Evacuation Hospital were transferred for deployment with the Seventh U.S. Army. The winter months of 1944–45 saw two additional veterinary evacuation hospitals brought into the animal evacuation system of the Fifth U.S. Army, the Italian 211th and Italian 212th. At this time, there were only Italian Army mule pack companies in the front lines; in fact, since mid-1944, when the U.S. 601st and 602d Field Artillery Battalions had departed for southern France after a short period of deployment, there were essentially no U.S. Army horses and mules in this field army. In January-February 1945, U.S. military animals were returned to the army front when the U.S. 10th Mountain Division arrived from the Zone of Interior; it included a full complement of divisional veterinary units. Then, in April 1945, the 36th Separate Veterinary Company came into the theater and was deployed in support of the 10th Mountain Division. By the end of active hostilities—following more than a year of urgent need and countless improvisations—there had come into the Mediterranean theater a U.S. field army with approximately 4,500 mules and horses available for pack transport and with a complete veterinary evacuation system that extended from the combat divisions, through the field army's hospitals and evacuating units, to the rear Service Forces area with its veterinary station and general hospitals and remount depots.

The Fifth U.S. Army veterinarian had little concern over the subsistence supply, but finally, in April 1945, the 67th and the 77th Veterinary Food Inspection Detachments were assigned for deployment at rail and truck heads, ration dumps, and ratio breakdown points. Following V–E Day, the workload of these units was taken over by the 6648th Veterinary Food Inspection Detachment (Provisional). Though the Fifth U.S. Army was earlier named for the occupation forces in Austria, it was not so deployed after V–E Day; in September 1945, its headquarters ceased operations.

The Seventh U.S. Army—successor to Headquarters, Force 163, that was established in January 1943—directed Operation HUSKY, or the invasion of Sicily. Throughout the Sicily Campaign (9 July to 17 August 1943) there was no veterinary officer on the staff of the army surgeon; however, Headquarters, II Corps, and most of the combat divisions which participated included assigned veterinary personnel. The veterinary officer in the 3d Infantry Division reported on the improvisation and maintenance of a divisional animal pack train; in about 2 weeks, more than 700 mules and horses were procured locally. Veterinary Food Inspection Detachments "B" and "T" landed at Gela and Licata, Sicily, 4 or 5 days after the invasion-landings were begun. In October-November 1943, the Seventh U.S. Army lost these two detachments by transfer—"B" to the AAF Adriatic Depot, and "T" to Island Base Section.

After the Sicily Campaign, the Seventh U.S. Army was stripped of most of its combat divisions while planning was undertaken for Operation ANVIL-DRAGOON, the invasion of southern France; the Southern France Campaign (15 August to 14 September 1944) saw the junction of the Mediterranean's forces with the Allied Armies of the European theater near Dijon, France, and the subsequent disintegration of the Germans in southwestern France. A veterinary officer was added to the army surgeon's office on 11 August 1944. Veterinary units and units with assigned veterinary personnel that now were moved into southern France included Veterinary Food Inspection Detachments "A" (later redesignated 887th) and "T" (later the 890th), 17th Veterinary Evacuation Hospital, 45th Separate Veterinary Company, 1st and 4th Medical Laboratories, 68th Quartermaster Refrigeration Company, 6th Port, and ½–6742d (later renamed 6835th) Quartermaster Remount Depot. Of course, some of these did not come into southern France until October or November 1944. Other units or organizations with assigned veterinary personnel included the 3d and 45th Infantry Divisions, the 601st and 602d Field Artillery Battalions, and the Service Forces headquarters of Coastal Base Section and Delta Base Section. About midway through the Rhineland Campaign, or on 20 November 1944, the foregoing were transferred to the jurisdiction of the European theater.

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Twelfth and Fifteenth Air Forces

The Army Veterinary Service with the Mediterranean theater's air forces originated in the fall of 1942 when a veterinary officer was assigned to the medical section of the Twelfth Air Force and one to the Air Force Service Command Medical Section—just before their departure from the United Kingdom. Soon after arrival in North Africa, both officers were reassigned to the XII Air Force Service Command. During the early part of 1943, the identity of the Twelfth Air Force was lost in an Allied air command (namely, Northwest African Air Forces), but in the fall of that year, it was reconstituted, and on 1 November 1943, its bomber command elements were released into the organization of the new Fifteenth Air Force. The latter was largely based in southeastern Italy and became a part of Headquarters, USSAFE (Strategic Air Forces in Europe), which directed the bombing of Germany; the Twelfth Air Force, on the other hand, provided tactical air support to the ground combat forces in the theater, and thus, its bases were scattered. By the end of 1943, XII Air Force Service Command included its staff veterinarian at Algiers, and there were veterinary subsections with the I, II, and III Air Service Area Commands. For the Fifteenth Air Force bases, there was only Veterinary Food Inspection Detachment "B" assigned since November 1943 to the Adriatic Depot at Bari; the 70th Veterinary Food Inspection Detachment was assigned there, too, but much later (in August 1944).

In January 1944, the two air force headquarters were reorganized under the newly created Headquarters, AAF/MTO (Army Air Forces, Mediterranean Theater of Operations) and XII Air Force Service Command was enlarged into the new AFSC/MTO (Air Force Service Command, Mediterranean Theater of Operations) to support both Twelfth and Fifteenth Air Forces. The senior veterinary officer with the air forces now was reassigned to the medical section of AFSC, and veterinary subdetachments were established with the latter's area commands. In July 1944, this veterinary service organization was revised with the organization of the 6565th, 6566th, and 6567th Veterinary Detachments (Air Force Overhead). The last of these three units included the ranking veterinary officer of AFSC, with location at Naples; in August 1944, this detachment commander was designated additional duty assignment as Air Force Veterinarian. The 6565th and 6566th, each with an organic section (totaling two officers and three enlisted personnel), were assigned for duty at bases of the Twelfth and Fifteenth Air Forces. It was not until February 1945, however, that the two food inspection detachments. "B" and 70th, along with other service forces personnel and activities in the Bari area, were released from the AAF to the new Adriatic Base Command. After V–E Day, the two air forces disbanded their veterinary detachments, and the 6567th Veterinary Detachment (Air Force Overhead) was disbanded sometime before November 1945 when AAFSC/MTO was closed

out. The inspection of subsistence supplied to airbases comprised the major workload of the veterinary service with the theater's air forces.

EUROPEAN THEATER

The Army Veterinary Service in the European theater had its formal start on 9 May 1942, when a veterinary officer, newly arrived from the Zone of Interior, was assigned to the Medical Section, Headquarters, USAFBI (U.S. Army Forces in the British Isles) (*6*, *7*). There were then four other veterinary officers in the theater command, which had been created in January 1942—this to succeed a type of U.S. military mission (namely, Special Observer Group) that had been set up in London, England, about 8 months earlier. In the same month that the theater veterinary service was first organized, the aforementioned command headquarters established its Services of Supply, to which a senior veterinary staff officer was assigned directly from the Zone of Interior by the War Department. This officer, however, on arrival overseas in mid-June 1942, was moved into the staff position of theater veterinarian.[7] In the interim, on 8 June 1942, Headquarters, USAFBI, was renamed Headquarters, ETOUSA. At this time, to the theater organization were added the INDIGO forces or U.S. Army Forces in Iceland, and the MAGNET forces or U.S. Forces for North Ireland, each with its own force veterinarian.

By the end of 1942, the European theater's veterinary service included 29 officers and 35 enlisted personnel. The rate of increase had been sufficiently rapid, but at least a third of this number were now in North Africa —recalling, of course, that Center Task Force and supporting units for Operation TORCH had been mounted out of the United Kingdom and eventually, during February 1943, were fully removed to the jurisdiction of the new NATOUSA. Another four veterinary officers were assigned to duty in Iceland. The officers in the United Kingdom were at station, as follows (fig. 22):

Medical Section, Headquarters, Services of Supply
Surgeon's Office, Southern Base Section
Surgeon's Office, Northern Ireland District
Depots G–20 and G–110
Ports at Bristol and Clyde
V Corps
29th Infantry Division
Eighth Air Force
VIII Air Force Service Command
8th Bomber Command
Air Bases at Burtonwood and Molesworth

Operation BOLERO, or the buildup of the U.S. forces in the United Kingdom, continued through 1943. During this year, the assignment status of the theater veterinarian was changed. Since June 1942 and lasting until

[7] Theater veterinarians or those acting in that capacity included Lt. Col. H. J. Juzek, VC, from 9 May 1942; Col. E. M. Curley, VC, after 11 June 1942; Col. C. B. Perkins, VC, after 21 August 1944; and Col. J. R. Sperry, VC, after September 1945.



FIGURE 22.—Veterinary officers in the United Kingdom. Kneeling (left to right): Maj. Richard A. Huebner, Capt. Jules J. Werner, Capt. Max G. Badger, 1st Lt. Vernon D. Chadwick, 1st Lt. Joseph G. Feinberg, Lt. Col. J. Y. Baldwin, RAMC, Capt. Martin Kadets, 1st Lt. John M. Livingstone, 1st Lt. Samuel Hutt, Capt. Marcus M. Mason, Flt. Lt. Raeburn, RAF. Standing (left to right): Capt. James G. Eagelman, Capt. Arthur B. Rogers, Maj. Benjamin B. Blood, Capt. Alexander Morris, Col. Walter L. Perry, MC, Lt. Col. Francois H. K. Reynolds, Lt. Col. Hugh F. J. Arundel, Col. Harry J. Juzek, 1st Lt. Charles S. Hallet, Col. Edward M. Curley, 1st Lt. Robert R. Altaker, Lt. Col. Robert J. Robertson, Capt. Morse A. Gates, Lt. Col. Charles O. Grace, Maj. Russell S. Wann, Capt. James A. Brennan, Maj. Robert B. Meeks, Capt. Ernest W. Rivers, Maj. Samuel E. Bunton, Jr., Capt. Karl F. Steinbach, Maj. Guy H. Todd, Capt. Max H. Carlin, Capt. Albert M. Michaels.

March 1943, this staff representative of the Army Veterinary Service in the European theater was actually on duty with the medical section at Headquarters, Services of Supply, located at Cheltenham. In March 1943, the chief of that section (or Chief Surgeon) was transferred to the theater headquarters at London, and the medical section itself, now removed to the higher level of theater headquarters organization, was subdivided into two geographically separated components: The Deputy Chief Surgeon's Office at London and the Deputy Chief Surgeon's Office at Cheltenham. The latter retained the major operational parts of the theater's medical staff, including the theater veterinarian, whereas the medical planning staff was relocated in London. Eventually, the entire medical staff for Headquarters, ETOUSA, was moved to the European Continent during the period 16–28 August 1944. As of 31 December 1943, the Army Veterinary Service in the theater included 65 officers and 135 enlisted personnel—the officers being assigned to duty as follows:

Surgeon's Office, Headquarters, European Theater of Operations, U.S. Army

1st Medical General Laboratory
1st Medical Concentration Center
Medical Sections of Eastern, Northern Ireland, Southern, and Western Base Sections
General Depots G–14, –15, –16, –20, –22, –23, –25, –30, –35, –40, –45, –47, –50, –55, –65, and –75
Quartermaster Depots Q–101, –103, –104, –105, –107, –108, –111, and –125
Ports of Embarkation: 4th, 5th, 11th, 12th, 14th, and 15th
Chemical Defense Station, European Theater of Operations, U.S. Army
Surgeon's Office, Headquarters, First U.S. Army:
  VII Corps
  2d and 3d Armored Divisions
  1st, 5th, and 9th Infantry Divisions
  101st Airborne Division
Surgeon's Office, U.S. Army Air Forces in United Kingdom:
  First Army Air Force
  2d Veterinary Platoon (Aviation), with 10th, 11th, 12th, 13th, 14th, 15th, and 22d Veterinary Detachments

The status of the theater veterinarian that had been gained in early 1943 lasted for about a year. During this time, there was a central coordination of veterinary technical affairs in the services of supply organization with those of the ground troops and air forces. However, this situation was terminated more or less in early 1944, when SHAEF (Supreme Headquarters, Allied Expeditionary Force) came into existence to direct the landings and operations of the Allied ground and air combat forces on the Axis-dominated European Continent. As the operational controls over the U.S. field armies and AAF were transferred to control by the new senior Allied headquarters, the U.S. Army theater command was reduced substantially to a service forces organization. It would have only administrative control over, and would provide only logistic support to, these air and ground forces. Concurrently, the medical staffs of theater headquarters and services of supply headquarters were consolidated into a single medical section, and the theater veterinarian acted in a double-job assignment.

After D-day, and with the relocation of theater headquarters on the

European Continent, the services of supply element of the combined theater-services of supply headquarters was renamed Headquarters, Communications Zone. From the medical standpoint, the theater Chief Surgeon was also the Chief Surgeon of the Communications Zone, and he and his staff, including the veterinary officer, functioned in this dual capacity. Between the theater veterinarian and the senior veterinarian on duty at each army headquarters, liaison was effected.

Just before D-day for Operation OVERLORD (on 6 June 1944), the theater's veterinary service organization included 118 officers and 282 enlisted personnel. These numbers were increased gradually during the succeeding months so that, as of 31 December 1944, they were 170 and 623, respectively. The changes were marked by new arrivals of units from the Zone of Interior, but a very large increase occurred during November when, following Operation ANVIL-DRAGOON (on 15 August 1944), the Seventh U.S. Army and supporting forces in southern France were transferred from the North African and Mediterranean theaters to the control of the European theater. As of the beginning of 1945, the veterinary officers in the theater were assigned as follows:

Surgeon's Office, Headquarters, European Theater of Operations, U.S. Army

Surgeon's Office, Headquarters, Communications Zone
- 17th Veterinary Evacuation Hospital
- 45th Veterinary Company (Separate)
- Veterinary Food Inspection Detachments: 166th, 167th, 168th, 169th, 887th (formerly "A"), and 880th (formerly "C")
- 1st Medical General Laboratory
- Medical Laboratories: 4th and 361st
- 804th Hospital Center
- Medical Sections of Southern Line of Communications, Continental Advance Section, Advance Section, United Kingdom Base, and the Brittany, Channel, Normandy, and Seine Base Sections
- General Depots G–18, –23, –24, –30, –35, –45, –47, –50, –65, and –75
- Quartermaster Depots Q–101, –107, –108, –111, and –114
- Quartermaster Base Depots: 52d, 53d, 54th, 55th, 56th, 58th, 62d, 63d, 68th, and 72d
- Quartermaster Refrigeration Companies (Fixed): 68th, 283d, 284th, 285th, 3089th, 3090th, 3091st, 3093d, and 4163d
- 6835th Quartermaster Remount Depot
- Signal Pigeon Companies: 277th, 278th, 282d, 284th, and 285th
- Transportation Corps Ports: 4th, 5th, 6th, 7th, 11th, 13th, 14th, 15th, 16th, 17th, and 51st
- Chemical Defense Station, European Theater of Operations, U.S. Army

Surgeon's Office, Headquarters, Armies: First, Third, Seventh, Ninth, and Fifteenth
- Armored Division: 3d
- Infantry Divisions: 3d and 9th
- Airborne Divisions: 17th, 82d, and 101st
- 1st Airborne Task Force
- Field Artillery Battalions (Pack): 601st and 602d
- Medical Laboratories: 1st, 7th, 10th, 28th, and 362d

Surgeon's Office, U.S. Strategic Air Forces
- Area Service Command, U.S. Strategic Air Forces
- Surgeon's Office, Eighth Air Force
- IX Air Force Air Service Command
- 1st and 2d Veterinary Detachments (Aviation), with 10th through 26th Veterinary Sections

Civil Affairs Division, Supreme Headquarters, Allied Expeditionary Force
- European Civil Affairs Unit and Regiments: 2d, 3d, and 4th

Soon after V–E Day, the veterinary personnel in the theater was rapidly cut back. On 1 July 1945, Headquarters, ETOUSA, was redesignated Headquarters, USFET (U.S. Forces in European Theater), and a month later the wartime Services of Supply or Communications Zone was renamed Theater Service Forces. Both had a main headquarters in Frankfurt, Germany, and a rear headquarters at Paris, France. In the interim, or effective on 14 July 1945, SHAEF went out of existence. Of course, by this time, service forces units, the field armies, and the AAF were being disbanded if not deployed to the Pacific theaters, and the Third and Seventh U.S. Armies were moving into their occupation duties in Germany. The regular veterinary service organizations that remained were operated for protecting the subsistence supply to troops and rendering veterinary animal service; however, a large number of veterinary officers who were surplus to the immediate military situation were temporarily utilized in CA/MG operations for occupied Germany. As of the end of 1945, only 67 officers and 128 enlisted personnel remained.

In regard to the accomplishments of the Army Veterinary Service in the European theater, particularly as relates to the inspection of food supplies, it must be observed that the matter of personnel assignments was such that no satisfactory brief explanation can be given of its operational organization. With the exception of the several quartermaster refrigeration companies (fixed) and the port units which operated over large areas but had too few veterinary personnel, inspections along the entire system of subsistence supply to troops were rendered on a provisional basis by veterinary personnel who, for the most part, were assigned to other organizations or were detached to service with units (fig. 23). The staff sections of Headquarters, ETOUSA, did not act favorably on the recommendations of the theater veterinarian or on the requisitions of base section commanders that were made for organizing veterinary food inspection detachments, though such units were being used in the Asiatic-Pacific theaters, and the AAF/ETO were utilizing somewhat similar units since the fall of 1943. Eventually, however, in the spring of 1945, a few such detachments (four in number) were organized on the European Continent—these joining two others which had come into southern France from the North African theater. Instead, veterinary inspection personnel routinely were assigned against so-called overhead allotments and provisional organizations in the base section subcommands. For example, on 14 June 1943, provisional Emergency Treatment Groups were authorized, aggregating 60 veterinary officers and the same number of enlisted personnel; also, veterinary enlisted personnel were specially assigned to medical hospital units of a given bed capacity. As the military operations developed on the European Continent, the procedure for assigning veterinary personnel to Emergency Treatment Groups was discontinued, and in its place a theaterwide personnel space allocation for 30 officers and 90 enlisted personnel was set up



FIGURE 23.—Veterinary personnel inspecting ration reserve dumps in the European theater.

and distributed among the existing base section subcommands of the Communication Zone organization. From such organizations, units, or base section headquarters to which they were assigned, the veterinary personnel then were attached for duty at general and quartermaster depots and other installations which were receiving, storing, issuing, or otherwise handling subsistence. When these depots and installations were closed out and moved into another area or base section subcommand—a constant changeover—administrative directives for the individual veterinary personnel to relocate were belatedly received. Following V–E Day, when quartermaster base depot units were selected for redeployment to the Pacific theater, recommendations were made by the headquarters staff of the European theater to satellite veterinary subdetachments directly on these units—which perhaps should have been done much earlier.

In connection with the losses of veterinary officers from the combat divisions after mid-1943, when the latter's T/O's were amended to delete the personnel space vacancies that had authorized the veterinary assignments, it was observed (*6*) in the European theater that this was—

> * * * of definite detriment to the supervision of adequate veterinary service and the accomplishment of our mission, despite the fact that argument has been presented by various individuals concerning the value of the Veterinary Officer in these assignments. It is considered that there is no more important problem than the provision of sound edible food to those in the field, especially during war when the obstacles of adequate

refrigeration and competent handling are magnified. The Division Veterinarian constitutes the last link in the chain of inspection from the date the animal is slaughtered to provide food. It is felt the Division Veterinarian is most important in the chain of inspection, since without this last step in the complicated and detailed inspection procedure, all may be lost by contamination or spoilage. When food supplies were captured * * * the absence of trained veterinary personnel in the field units below Army, made the complete and adequate inspection of these materials almost impossible. There is little doubt that many food supplies acquired under these conditions were consumed by troops at the front without the protective benefit of veterinary examinations. After these organizations had consumed articles they desired, the existence of remaining food stores was then reported to higher headquarters. Because of the strong desire of troops for fresh meat, clandestine slaughter was sporadically practiced and, here again, no adequate examination was made either before or after slaughter.

Many of the defects in the transportation, storage, and other handling of subsistence supplies that were reported upon in other oversea theaters were observed also in the European theater, the single exception being, of course, that there was not the tropical heat that influenced the deterioration and losses at so rapid a rate in Africa, the Middle East, and in the Pacific areas. Also, semipermanent or permanent-type protective covering of subsistence stockpiles was the rule; outside of this theater, such storage was usually an exceptional condition. In matters relating to transportation, the Army Veterinary Service sought to minimize food losses by recommending the discontinuance of "flatting" of cargo in ships with cases of subsistence, the maintenance of constant temperatures in refrigerated subsistence during truck and rail shipments from ports to depots, and the reporting to concerned Transportation Corps and Quartermaster Corps officers on the types of damage which were occurring in the various types of subsistence cases. Refrigerated railroad cars presented problems of overall shortages in numbers, insanitary conditions or lack of cleanliness, and the scarcity of re-icing facilities along the food supply system. An innovation in moving perishable subsistence was its loading on trucks and covering with a layer of straw and a tarpaulin—with the refrigerated condition of such loads holding well up to 18 or 19 hours.

Generally, the subsistence supply originating from the Zone of Interior was found to be satisfactory, and from time to time, changes were recommended for its improvement. For example, salt-packed bacon and ham were suggested for packing in ventilated boxes; the grade of butter shipped from the United States was raised so that an acceptable quality product would arrive in the theater; and large-sized drums of dried milk and large cans of evaporated milk were unsatisfactory because only a part of drums were used at a time, with a rapid spoilage of the unused portions, and the cans were readily damaged by handling in transit. Other veterinary problems with the subsistence supply, involving laboratory investigations, included the salvage of such ships cargoes as were contaminated by salt water or bilge water, the studies on British reports of caseous lymphadenitis infection in carcasses of lamb and mutton of U.S. origin and of salmonella

contamination of dried egg powder manufactured under civilian Federal inpection, the value of canned rations which had been alternately frozen and thawed (in Iceland), and the disposal of unfit foods or garbage to the local civilian population without the attending threat of disseminating animal diseases. It may be observed that the civilian livestock raisers in the European theater, as elsewhere, were prone to blame Army garbage as the factor for introducing animal diseases whereas the real fault was, possibly as the result of wartime conditions, the failure on their part and local regulatory authorities to properly treat (or process) such garbage prior to feeding to animals—such being done pursuant to law or regulation, in peacetime.

The Army Veterinary Service inspected captured foods before their issue to troops or disposition to civilians, surplus stores from ships arriving in the theater, and, after June 1943, fruits and vegetables. Some small quantities of locally procured foods were inspected. In this connection, it may be noted, the American forces first arriving in the United Kingdom were subsisted on the British Army ration. Following the change to its own ration supply, the U.S. Armed Forces continued only the procurement of milk and a few other items, on account of the wartime food shortages for the civilian population and the prevailing standards of sanitation. The fresh milk supply was developed only in Northern Ireland for hospital patients, and ice cream was manufactured under veterinary supervision in numerous messhalls or approved civilian establishments using Army-supplied raw material. In June 1943, a veterinary officer began procurement inspections on canned chicken soup which was packed in a self-heating container, at a plant in England; actually, the canned chicken ingredient was of U.S. origin. Another food item inspected during procurement within the theater was frozen cod fillets from Iceland.

Veterinary service with animals concerned Army horses and mules, dogs, and signal pigeons—the same as in most other major oversea theaters during World War II. Horses and mules came into the theater officially for the first time during November 1944 when the Seventh U.S. Army and supporting units in southern France were received by transfer from the North African and Mediterranean theaters. Mounted units with veterinary personnel included the 601st and 602d Field Artillery Battalions (Pack) and the 6835th Quartermaster Remount Depot (Overhead); also, there were the 17th Veterinary Evacuation Hospital and the 45th Veterinary Company (Separate). A peak horse and mule strength approximating 1,500 animals was reached during the winter months of 1944–45 (table 20). These numbers, however, do not pertain to the captured animals (estimated at 10,000) that came into the hands of the field armies and services of supply subcommands on the European Continent. Though the Army Veterinary Service planned for the care and treatment of captured animals, little was accomplished because Headquarters, ETOUSA, set forth the

policy statement (in March 1945) that: "No animals should be captured . . ."; instead, these animals were disposed of by impromptu turnover to the local civilian authorities. There is no question that this was a sort of reckless and wasteful practice because captured animals were assembled and frequently used by army units without benefit of adequate supervision and testing against diseases that were transmissible to troops and were redistributed (or given away) into areas without prior examination for diseases that could have decimated the local civilian animal populations—a practice that became dubious when the theater Chief Quartermaster set up a project to purchase animals from the French economy for supply to the Mediterranean theater.

TABLE 20.—*Sick and wounded U.S. Army horses and mules, European theater, by months, 1944–45*

Year and month	Average mean strength	Admissions				Died or destroyed	Killed in action	Length of treatment
		Total	Disease	Injury	Battle casualty			
1944		*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Days*
November	1,402	101	34	66	1	4	14	1,333
December	1,492	114	31	60	23	20	3	1,447
1945								
January	1,451	137	46	73	18	13	3	2,150
February	1,501	229	144	83	2	3	1	3,929
March	881	173	99	51	23	8	4	3,780
April	660	51	13	35	3	------	------	1,685
May	675	49	14	34	1	------	------	1,489
June	714	50	10	39	1	4	------	1,163
July	786	106	38	68	0	4	------	1,293
August	877	76	29	47	--------	8	------	1,417
September	344	29	8	21	--------	3	------	651
October	339	28	3	25	--------	2	------	574
November	339	24	7	17	--------	1	------	477
December	321	13	6	7	--------	------	------	713
Total	--------	1,180	482	626	72	70	25	22,101

Source: Veterinary Reports of Sick and Wounded Animals, MD Form 102, November 1944 through December 1945. [Official records.]

Army dogs of U.S. origin came into the European theater by direct shipment to the Continent, and these were utilized to a limited extent alongside British-trained dogs loaned to the U.S. units. This utilization of British-trained dogs was predicated on the fact that, during the years of preinvasion preparations in the United Kingdom, the British laws and

regulations relating to animal importations and mandatory 6-month quarantine were recognized by the European theater as making virtually impractical the earlier use of U.S.-trained dogs. Veterinary care and treatment services for these dogs by U.S. veterinary personnel were so minimized by the theater headquarters staff to the extent that arrangements were made for the professional treatment of the sick and wounded dogs by civilian veterinarians or by the British Army veterinary service.

Services of Supply (Later Communications Zone), European Theater

Headquarters, Services of Supply, in the European theater was established in May 1942, and its medical section included a staff veterinary officer who acted in the dual capacity as theater veterinarian. After the spring of 1943, the situation was reversed when the latter, with new and primary assignment to Headquarters, ETOUSA, also acted in the dual capacity as senior service forces veterinarian; then a year later, following the formation of SHAEF, the theater headquarters and its services of supply headquarters were merged. Throughout this period, actually since July 1942, the personnel and activities of the service forces located in the United Kingdom were organized under one of several subcommands such as London Base Section (originally Headquarters Command, ETOUSA), Southern Base Section, Eastern Base Section, Western Base Section, and Northern Ireland Base Section—each with a headquarters, including a base section medical staff and usually with a veterinary officer. These base sections had direct control over the ports, quartermaster and general depots, and other units or facilities which received, stored, or otherwise handled the subsistence supply for the troops that were located in their geographic areas. In one such subcommand, the Southern Base Section, veterinary personnel, as of December 1943, were assigned to the headquarters medical staff, a port unit, two general depots, five quartermaster depots, six attached "cold sores" installations, and eight general and station hospitals—the latter had only enlisted personnel assigned.

The foregoing base sections remained under the jurisdiction of Services of Supply, ETOUSA, through 1943 and early 1944. Then, beginning in May 1944 and continuing into mid-September, the original ones were subordinated as district subcommands of the newly established United Kingdom Base (in September 1944), and eight new base sections were established when the U.S. armies invaded and moved out over the Normandy beachheads. As the cross-channel invasion got underway, the service forces component of the combined Headquarters, ETOUSA, and Headquarters, Services of Supply, ETOUSA, was renamed Communications Zone (on 7 June 1944). A small forward echelon of this headquarters staff actually moved to the European Continent, setting up at Valognes, France, in mid-July 1944, but, within less than a month and before it became fully operational, it was joined by the main headquarters staff from London. The theater veteri-

narian of this combined theater-communications zone headquarters was not included in the movement orders to the European Continent, and for a short period of time his duties were assumed by the verterinary officer assistant. On 21 August 1944, the Third U.S. Army veterinarian, Col. Clell B. Perkins, VC, was reassigned as the new theater veterinarian.

The service forces subcommands that were established and came to operate on the European Continent included Advance Section, Communications Zone, (May 1944), Brittany Base Section (originally Base Section 1, in May 1944), Loire Base Section (originally Base Section 2, in June 1944), Normandy Base Section (originally Base Section 3, in August 1944), Intermediate Section (originally Base Section 4, in August 1944), Seine Base Section (in August 1944), Channel Base Section (in September 1944), and Oise Section (later Oise Intermediate Section, in September 1944). Of course, there were changes in these; for example, the Loire Base Section was absorbed by the Brittany Base Section, and the latter was then absorbed by Normandy Base Section. Almost as soon as these were established, each base section headquarters medical staff included a Veterinary Corps officer as assistant to the surgeon. The first of these to become operational in Northwest Europe was Advance Section, Communications Zone—reaching France on 15 June 1944, and under the command control of Headquarters, First U.S. Army, until 14 July 1944. It included a section veterinarian.

While these several base sections were coming into operational existence on the European Continent, another two were set up by the North African theater for its Operation ANVIL-DRAGOON: Coastal Base Section, in May 1944, which evolved in October 1944 as Continental Base Section; and Delta Base Section, in October 1944. The former moved in the immediate rear area of the Seventh U.S. Army as it advanced through southern France, and the other operated as the rear logistic support base. Both sections originally were under the jurisdiction of their parent Headquarters, Communications Zone, NATOUSA, but, during November 1944, when the southern France area was totally transferred to the jurisdiction of the European theater, this zonal headquarters organization, having moved out of the North African theater, was disbanded and concurrently reorganized as Southern Line of Communications. In February 1945, Southern Line of Communication was discontinued, and both Continental Advance Section, with headquarters then at Dijon, and Delta Base Section, with headquarters at Marseilles, France, came under the immediate jurisdiction of Communications Zone, ETOUSA.

Soon after V–E Day, the Advance and Continental Advance Sections were disbanded, and Normandy and Channel Base Sections were merged into the new Chanor Base Section; then in early 1946, the latter was consolidated with Oise, Seine, and Delta area commands on continental Europe into the new Western Base Section, while United Kingdom Base was reorganized as London Area Office. In the meantime, or on 1 August 1945, the postwar

European theater's Headquarters, Communications Zone, was renamed Headquarters, Theater Service Forces.

Supreme Headquarters, Allied Expeditionary Force

There was no Army Veterinary Corps officer on the staff of the Chief Medical Officer, Supreme Headquarters, Allied Force. Full responsibility and authority to coordinate the theater veterinary service was vested in the theater chief surgeon and his staff. There were veterinary officers assigned to G–5 Division, SHAEF, but these assignments were made in connection only with CA/MG operations in liberated and occupied areas and countries. The mission of the Allied headquarters was fulfilled on 7 May 1945, when Germany surrendered, and, on 14 July 1945, it went out of existence.

First, Third, Seventh, Ninth, and Fifteenth U.S. Armies

The veterinary service organization with the ground forces in the European theater increased gradually from the 1 or 2 officers with V Corps, which in mid-1942 comprised U.S. Army, Northern Ireland, to a strength of 37 officers and more than 150 enlisted personnel by the winter of 1944–45. The early increases were mainly due to the influx of divisions into the United Kingdom, each with their own division veterinarians, but later—after the personnel space vacancies for veterinarians in divisions and army corps headquarters had been removed—the buildup was continued by the attachment to the ground units of such service forces units as medical laboratories, quartermaster refrigeration companies, signal pigeon companies, and several animal units. Even in January 1945, however, there were 16 veterinary officers assigned to the headquarters staffs of field armies and divisions, including the First, Third, Seventh, Ninth, and Fifteenth U.S. Armies, and the 3d and 9th Infantry, 2d and 3d Armored, and 17th, 82d, and 101st Airborne Divisions. The aforementioned corps comprised the largest tactical unit in the European theater until October 1943 when the Headquarters, First U.S. Army arrived from the Zone of Interior. Its headquarters medical section included an army veterinarian. The Third U.S. Army followed, building up in early 1944 and coming into action on the European Continent on 1 August 1944. These two field armies were coordinated by Headquarters, 12th Army Group (originally called Headquarters, 1st Army Group)—the latter having, at no time, a regularly assigned veterinary staff officer. Before the end of 1944, two other field armies were added to this group: The Ninth and the Fifteenth U.S. Armies, each with a veterinary branch in the army surgeon's office. By this time, also, there had come into the Allied lines the Seventh U.S. Army, with a veterinary officer assigned to the army surgeon's office, that had advanced from the invasion beaches of Operation ANVIL-DRAGOON through south-

ern France. It was coordinated with the French First Army by Headquarters, 6th Army Group. Altogether, in five major campaigns, the ground combat forces had pushed out of their OMAHA and UTAH beachheads in Normandy and marched eastward into Central Europe.

Following the surrender of Germany, only two field armies were retained in the European theater: The Third U.S. Army in the Eastern Military District, and the Seventh U.S. Army in the Western Military District of the American Zone of Occupied Germany.

Eighth and Ninth Air Forces

The Army Veterinary Service with the air forces in the European theater was begun in mid-1942 when personnel were assigned to Headquarters, Eighth Air Force and VIII Air Force Service Command—these being activated within the theater in February 1942. Later that year, the newly organized Twelfth Air Force and XII Air Force Service Command were provided assigned veterinary officers, but these soon were transferred to the North African theater. During the fall of 1943, the Ninth Air Force came into the theater from the Middle East theater, with its own assigned veterinary personnel. A few months later, the two numbered air forces were grouped for administrative purposes under the new USAAFUK (U.S. Army Air Forces in the United Kingdom), later reorganized in March 1944 as USSAFE (U.S. Strategic Air Forces in Europe). The latter established its own Air Service Command, complete with a medical section including a staff veterinary officer who served in a double duty status at Headquarters, USSAFE; the same staff veterinary officer acted as technical adviser to the air surgeon on coordinating the veterinary service organization in the Eighth and Ninth Air Forces.[8] The Eighth and Ninth Air Forces each had its own air service command whose headquarters medical sections included a veterinary staff officer. During the winter of 1943–44, these air force service commands obtained a better organization of their veterinary services at the various bases when two veterinary detachments, each with nine subsections, were activated. (Before March 1944, the detachments were named platoons, and the sections as detachments.) Thus, for VIII Air Force Service Command there were organized the 1st Veterinary Detachment (Aviation), and 10th, 11th, 12th, 13th, 17th, 21st, 22d, 23d, and 26th Veterinary Sections; the IX Air Force Service Command gained the new 2d Veterinary Detachment (Aviation), with 14th, 15th, 16th, 18th, 19th, 20th, 24th, 25th, and 27th Veterinary Sections. The tactically deployed Ninth Air Force

[8] As of the spring of 1944, there were three numbered air forces operating in the European theater: Eighth, Ninth, and Fifteenth Air Forces. Under the jurisdiction of SHAEF, these were assigned to two major air commands: AEAF (Allied Expeditionary Air Force) and USSAFE. AEAF exerted only operational control over the Ninth Air Force to provide air support to the ground combat forces, but for administrative purposes, Ninth Air Force was controlled by USSAFE which also maintained both administrative and operational controls over the Eighth Air Force, as well as operational control (only) over the Fifteenth Air Force, which was operating from bases in, but otherwise under the administrative control of, the North African and Mediterranean theater.

moved to France soon after the landings were made, accompanied by its veterinary personnel and units, and Headquarters, USSAFE, soon followed. The Eighth Air Force, however, continued to operate its strategic bombing operations from bases in the United Kingdom. It may be observed, also, that veterinary personnel were assigned to the Eastern Air Command, USSAFE, which during 1944 included several airbases in and about Kiev, U.S.S.R.

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CHAPTER X

Functional Organization in Asiatic-Pacific Theaters

THE THREE PACIFIC AREAS

At the onset of World War II, the Army Veterinary Service in the Pacific was divided between two oversea military departments: The Hawaiian Department and the Philippine Department. The latter, beginning in mid-1941, was subordinated in a number of reorganizations and gradually disappeared from the Army establishment in the new concept of the SWPA (Southwest Pacific Area); this was hastened by the Japanese aerial attacks and subsequent invasion of the Philippines in December 1941. Much the same occurred with the Hawaiian Department long after Japanese carrier planes had attacked Pearl Harbor, when, on 14 August 1943, that department was superseded by the newly created USAFICPA (U.S. Army Forces in Central Pacific Area). These two departmental or area commands were joined by a third command, USAFISPA (U.S. Army Forces in South Pacific Area), which was established on 7 July 1942. After that time, for more than a year, there were these three major areas or theaterlike commands in the Pacific, each having or developing its own veterinary service organization. Then, on 1 August 1944, USAFICPA and USAFISPA were consolidated into the new USAFPOA (U.S. Army Forces, Pacific Ocean Areas), which was established on that date. The USAFPOA with USAFFE (U.S. Army Forces in the Far East), as the Army Forces in the SWPA came to be called, comprised the two Army theaters in the Pacific until the spring-summer of 1945.

Up to this time, supreme command over Allied and joint Army-Navy operations in the Central and South Pacific Areas was vested in Adm. Chester W. Nimitz, Commander in Chief, POA, while Gen. Douglas MacArthur, Commander in Chief, SWPA, controlled all military activities in the SWPA. In April 1945, however, this twofold division of military planning and tactical responsibilities by territorial description of the Pacific theater was replaced by the redivision of military operations and activities into an Army component and a Navy component, and the Commander in Chief, SWPA, was given the additional designation of Commander in Chief, USAFPAC (U.S. Army Forces, Pacific). In the following months, USAFPAC consolidated or absorbed both USAFPOA and USAFFE, the latter two being reorganized and continued respectively as the administrative subcommands: USAFMIDPAC (U.S. Army Forces, Middle Pacific) and USAFWESPAC (U.S. Army Forces, West Pacific). Each area subcom-

mand included its own veterinary service organization complete with a headquarters-assigned staff veterinarian, but it was not until October 1945 that a Veterinary Corps officer was assigned to Headquarters, USAFPAC, to coordinate the two. At this time, the Army Veterinary Service in the Pacific theater approximated 190 officers, as contrasted with its personnel strengths at the onset of World War II when the Hawaiian Department had 7 and the Philippine Department had 12 officers. For purposes of simplifying the current discussion of veterinary functional organization and activities in the Pacific theater, reference hereinafter is made usually to the three major area commands by their geographic descriptive names, because as will be observed, the USAFPOA was not an all-inclusive Army command for the Pacific, and there was no U.S. Army Forces, Southwest Pacific area or theater.

U.S. ARMY FORCES IN CENTRAL PACIFIC AREA

The U.S. Army Forces in Central Pacific Area, with headquarters at Fort Shafter, Oahu, T.H., was established on 14 August 1943; prior to that date, it was the Hawaiian Department. On 1 August 1944, USAFICPA was reduced to the status of a subordinate echelon, the Central Pacific Base Command, and its operational planning staff and air and ground combat units were transferred to control of the newly created Headquarters, USAFPOA. This lasted until 1 July 1945 when the latter was absorbed by USAFPAC, with General MacArthur as commander in chief, and instead, USAMIDPAC was created as a major area subcommand. At the beginning of the war period, veterinary activities in this CPA (Central Pacific Area) were administered at the staff level by the Veterinary Corps officer—designated department veterinarian [1]—acting under the jurisdiction of and as assistant to the surgeon who was assigned to Headquarters, Hawaiian Department (*1*). Early in 1942, and continuing until the fall of 1943 and then again from 1 August 1944 to the end of the war period, the senior veterinarian in the theater was given primary assignment to a lower administrative echelon of the command while acting as nominal theater veterinarian, although on 6 June 1945, a company grade veterinary officer was assigned to Headquarters, USAFPOA, to act as "on-ground" assistant to the senior veterinarian. While this was not a credit in the general concept of military organization which had reduced the senior veterinarian in the theater to a subordinate command headquarters during the two periods mentioned (once to the services of supply organization and later to a major base command headquarters), there was at no time a question by senior air, ground, or other base command veterinarians (and surgeons of most echelons) as to the status of the aforementioned officer to centrally administer the Army

[1] Theater veterinarians or senior veterinary officers acting in that capacity included: Col. J. D. Derrick, VC (to 16 July 1942), Col. F. L. Holycross, VC (16 July–23 December 1942), Maj. (later Col.) W. O. Kester, VC (23 December 1942–12 August 1945), and Col. H. K. Moore, VC (beginning 12 August 1945).

Veterinary Service on a theaterwide basis; in other words, personal communications and personalities accomplished more to coordinate the theater's veterinary service organization than did the established channels of military command which had divided it.

Before the Japanese attack on Pearl Harbor, the Army Veterinary Service in the Hawaiian Department included the department veterinarian who was also commanding officer of the Veterinary General Hospital, Fort Shafter (later removed to Fort Armstrong), and the station veterinarian, Schofield Barracks, who was also commanding officer of the Veterinary Station Hospital, located there. Both hospitals cared for the 350 horses and mules in the department and conducted meat and dairy hygiene services at station levels. Another veterinary detachment, called South Sector Veterinary Detachment, inspected the commercial food establishments and the few products which were procured locally in Honolulu. Altogether, the department's veterinary personnel strength in peacetime approximated 4 officers and 22 enlisted personnel, all stationed in Oahu. During 1941, these personnel numbers were about doubled to total, as of 7 December, 7 officers and 53 enlisted personnel, and in August 1941, a Veterinary Corps officer had been assigned full-time duty on the island of Hawaii. Subsequently, all islands of the Hawaiian group gained veterinary personnel: Maui on 11 January 1942, with Molokai and Lanai being included in the jurisdiction of the Maui District veterinarian; and Kauai on 12 February 1942.

On or about 7 December 1941, both the proclamation of martial law by the civilian Governor of Hawaii and the military reorganization resulted in the department headquarters medical staff becoming involved in the Office of Military Governor for the Territory of Hawaii and its subordination in the staff of the new Rear Echelon for Supply (later renamed Hawaiian Services of Supply); the Forward (or Tactical) Echelon was comprised of the original defense troops. In connection with civilian affairs, the department veterinarian provided technical advice on the storage and handling of civilian food supplies and the continuation of the local dairy and meat industries and cooperated with the Territorial Boards of Health and of Agriculture and Forestry in the maintenance of sanitary standards in the local food establishments and animal quarantines. In addition, a program for safeguarding the production of fresh milk against deliberate bacterial contamination, if at all attempted, was instituted under direction of the department surgeon. Eventually, veterinary antibiological warfare procedures were conducted also in soft beverage plants, ice cream manufactories, and other commercial food industries, on all of the Hawaiian Islands. During 1942, the provisional general and station veterinary hospital organizations on Oahu Island were replaced by the South and the North Sector Veterinary Detachments, and the former district veterinarians on Hawaii, Maui, and Kauai Islands were reduced (on 12 March 1942) to the status of service command veterinarians and generally were made subordinate to the

respective island district headquarters which now planned for the local defense of the respective islands and administered the tactical forces (including one or more infantry divisions or a part thereof) that were deployed to them. In the fall of 1942, or after the Battle of Midway (3 to 6 June 1942) which removed the immediate threat of further Japanese aerial attacks or any amphibious invasion of the Hawaiian Islands, the island service commands were reecheloned from jurisdiction under the respective district headquarters commands to direct control by Hawaiian Services of Supply (successor to the department's original Rear Echelon for Supply), or Hawaiian Service Forces, as this command was named after 10 April 1943.

On these islands, the service command veterinarians inspected all foods (including fruits and vegetables) which were received and supplied to Army air, ground, and service troops and to the Marine Corps divisions that were "staged" on the islands, surveyed and developed sanitary standards in local dairies and ice cream plants, conducted at-slaughter inspections of beef cattle such as were surplus to local civilian needs but which could be used to furnish beef to the Army, operated the Army's antibiological warfare program in local food establishments, and provided professional animal services to Army dogs, signal pigeons, and to a very small number of horses or mules (the latter being used only on Hawaii and Kauai); in addition, they cooperated with the respective island's Office of Military Governor and with the local civilian veterinarians and public health authorities. On 1 November 1942, one veterinary officer was assigned to the Army task force on Christmas Island. During 1942, veterinary personnel were also included in the infantry divisions which had been reorganized or activated in the Hawaiian Department or which arrived from the Zone of Interior and in the Seventh Air Force for duty at Hickam Field, Oahu. As of the end of December 1942, the Army Veterinary Service totaled 19 officers and 84 enlisted personnel (table 21).

On 10 August 1943, a reorganization of the Hawaiian Department brought about the abolishment of the Hawaiian Department Service Forces Command and the consequent redesignation of the outlying Hawaiian Islands service command veterinarians as district veterinarians. Many services of supply activities on Oahu were assigned to the newly established Army Port and Service Command (built up around the 24th Major Port unit), but until May 1944 no veterinary personnel were assigned there to conduct veterinary services in the port of Honolulu. Also, even if there had been any doubt of the status of the department veterinarian after early 1942, he was now returned with primary duty assignment to the department surgeon's office. Somewhat later in 1942, the area or South and North Sector Veterinary Detachments on Oahu were discontinued, and the Veterinary General Hospital at Fort Armstrong and the Veterinary Station Hospital at Schofield Barracks were again organized. Also, a veterinary section was opened in the 279th Signal Corps Pigeon Company which operated a pigeon breed-

TABLE 21.—*Distribution of veterinary personnel, Hawaiian Department, December 1942*

Duty assignment	Officer personnel	Enlisted personnel
Oahu Sector Veterinary Detachments:		
South (including department veterinarian)	4	34
North	3	22
Service commands:		
Hawaii Islands	3	11
Maui, Molokai, and Lanai Islands	2	6
Kauai and Niihau Islands	2	5
Army Task Force, Christmas Island	1	
24th, 27th, and 40th Infantry Divisions	3	3
Seventh Air Force	1	3
Total	19	84

ing and training base on Oahu and maintained detachments throughout the Hawaiian Islands.

On 14 August 1943, USAFICPA was created, with headquarters at Fort Shafter, and the Hawaiian Department was continued but only in an inactive status. This reorganization and territorial expansion of USAFICPA did not greatly change the existing theater veterinary organization and, as of 31 December 1943, it comprised 26 veterinary officers and 153 enlisted personnel.

By the end of another year (that is, 31 December 1944), these veterinary personnel numbers were increased to 70 and 288, respectively, and the veterinary functional organization was vastly more complex and covered a very large area of the Pacific. In January and February 1944, the Marshall Islands (including Kwajalein and Eniwetok) were seized, a veterinary officer landing on 1 February 1944 on Kwajalein with the surgeon's office of an Army defense battalion (later reorganized as Army Garrison Force, Kwajalein). This garrison force veterinarian also acted as the veterinarian for the Gilberts and the Marshall Army Area commands which were organized later. Operation FORAGER to capture the Marianas was next on the schedule of joint Army-Navy campaigns, but as this campaign was launched, Headquarters, USAFICPA, revitalized its staff organization, with primary emphasis on the retention only of a small group of personnel for operational planning while the administrative staff personnel, who were more concerned with military activities in the immediate Hawaiian Islands area, were to be subordinated to a new base subcommand. Thus, on 1 July 1944, the Central Pacific Base Command was established as a major echelon under USAFICPA. In the next month (or on 1 August 1944), the latter became USAFIPOA, and nearly all administrative personnel in the original headquarters not previously reassigned were then transferred to Headquarters, Central Pacific Base Command, with headquarters at Fort Ruger (except the headquarters medical section which was located at Fort Shafter).

These reorganizations effected the reduction of the nominal theater veterinarian to primary assignment with Headquarters, Central Pacific Base Command.

This became a critical situation because the new USAFPOA also had assumed jurisdiction of USAFISPA, now reorganized as South Pacific Base Command (with headquarters at Nouméa, New Caledonia) and on the same level of theater organization as the Central Pacific Base Command. Each base subcommand had its own veterinary service organization headed by a base command veterinarian, but there was no formal coordination of the two at the theater headquarters level. In addition to the two base subcommands, there was the veterinary service with AAF (Army Air Forces), POA, (which replaced the Seventh Air Force as the senior air command) and that with the Tenth U.S. Army which in the fall of 1944 began to stage in the Hawaiian Islands for Operation ICEBERG (or the invasion of the Ryukyu Islands). Eventually, in mid-1945, a junior Veterinary Corps officer was assigned to the Medical Section, Headquarters, USAFPOA, to act as assistant to the Central Pacific Base Command's veterinarian who had been acting as senior veterinary adviser in that headquarters since the summer of 1945. Another feature of the recent reorganization was that the campaigns in the Marianas group, now coming to a close, ended with veterinary service organization being established on Guam, Saipan, Tinian and elsewhere in that part of the Pacific areas. As of January 1945, the Army Veterinary Service with USAFPOA included: The veterinary officers with medical sections of the Tenth U.S. Army; the AAF; 2 base commands; and 15 district, island command, or Army garrison forces commands; 2 provisional veterinary hospital organizations and 6 separate veterinary detachments or units; the veterinary sections organic to 3 Medical Department laboratories, 2 Quartermaster Corps refrigeration companies, 1 Transportation Corps port (which was the nucleus of a port and service command), and 1 Signal Corps pigeon company; and the veterinary inspection personnel with the U.S. Joint Army-Navy Purchasing Board (in New Zealand). Altogether, 70 officers and 288 enlisted personnel were being utilized. The major echelons of veterinary service organization in the theater now included:

Attending Veterinarian, Surgeon's Office, Headquarters, USAFPOA

Veterinary Section, Surgeon's Office, Headquarters, Central Pacific Base Command
Veterinary Section, Surgeon's Office, Headquarters, South Pacific Base Command
Veterinary Section, 18th Medical General Laboratory
Veterinary Section, Surgeon's Office, Army Garrison Force, Kwajalein
Veterinary Section, Surgeon's Office, Army Garrison Forces, for Saipan, Tinian, Guam, Angaur, and APO 86 (later Iwo Jima) Islands
Veterinary Section, Surgeon's Office, Tenth U.S. Army
Veterinary Section, Surgeon's Office, AAF, POA

During the spring of 1945, veterinary personnel set up station on Iwo Jima when an Army garrison force moved there and, effective on 25 April

1945, the Army service forces there, together with those on Guam, Saipan, and Tinian of the Marianas group, and on Angaur in the Caroline Islands group were subordinated under jurisdiction of the newly formed Western Pacific Base Command—the third and last of the base subcommands formed by USAFPOA. This base command, with headquarters on Saipan, was originally provided attending veterinary services by the local Army garrison force veterinarian, but eventually a staff veterinary officer was assigned to base command headquarters.

With the unification of all Army forces in the Pacific areas under USAFPAC, effective on 1 June 1945, USAFPOA was reorganized as an administrative territorial subcommand under the new name of USAFMIDPAC. The latter continued the Central, South, and Western Base Commands, each with a headquarters veterinarian, for the remainder of the active war period, but, on 1 August 1945, it lost jurisdiction over the Tenth U.S. Army and other forces which had just completed the final phases of the Ryukyus campaign. Also, just before this time, the original Headquarters, South Pacific Base Command, was reorganized and redesignated by USAFPAC as Army Service Command-O and projected for deployment in the planned invasion of Japan; concurrently, the New Caledonia Island Command headquarters staff moved in the position vacancy as South Pacific Base Command headquarters. There was little change in the Middle Pacific's base command structure immediately after V–J Day, although in November 1945 the Central Pacific Base Command was discontinued and its personnel and activities were transferred to the direct control by USAFMIDPAC. As of the end of 1945, the area's veterinary service organization comprised 21 veterinary officers (and 1 Medical Administrative Corps officer) and approximately 150 enlisted personnel who were on duty as follows:

Veterinary Section, Surgeon's Office, Headquarters, USAFMIDPAC

Veterinary Section, Headquarters, Oahu Medical Service:
- 113th Medical Service Company (Veterinary)
- Veterinary Station Hospital
- Veterinary Section, 18th Medical General Laboratory

Veterinary Section, Surgeon's Office, Army Port and Service Command

Under Oahu Quartermaster Service:
- Veterinary Section, 51st Quartermaster Base Depot
- Veterinary Section, Quartermaster Supply Point No. 1
- North Sector 63d, 64th, and 65th Veterinary Animal Service Detachments

Veterinary Section, Surgeon's Office, Army Garrison Force, Hawaii

Veterinary Section, Surgeon's Office, Army Garrison Force, Maui

Veterinary Section 1, Surgeon's Office, Army Garrison Force, Kauai

Veterinary Section, Surgeon's Office, Army Garrison Force, Kwajalein

Veterinary Section, Surgeon's Office, Army Garrison Force, Christmas Island

Veterinary Section, Surgeon's Office, Headquarters, South Pacific Base Command

Veterinary Section, Surgeon's Office, Headquarters, Western Pacific Base Command

Veterinary Section, Surgeon's Office, AAF, Middle Pacific

Summarizing veterinary accomplishments in the Central Pacific Area, the Army Veterinary Service provided veterinary care for an average ani-

mal (horses and mules) strength of 479. During the period, July 1941 to December 1945, there were 1,625 admissions, and 174 animals died or were destroyed. More than 865 million pounds of foods of animal origin were inspected during 1944 and 1945.

Central, South, and Western Base Commands

After mid-1944, the Army Veterinary Service in the CPA evolved largely about three base subcommands which were established to centralize the administration and control of groups of island bases. Thus, there were the Central Pacific Base Command which comprised the Hawaiian Islands, the South Pacific Base Command which included the original defense forces on the various islands in the South Pacific and most of the former battleground in the Solomons, and the Western Pacific Base Command which included the Marianas and other island groups on the southern approaches to the Ryukyus and Japan. Each base command organization had its own staff veterinarian assigned to the headquarters medical section.

Central Pacific Base Command.—Army service forces activities (training, supply, and related logistic operations) in the CPA, particularly in the Hawaiian Islands, were administered, after 1 July 1944, by the Central Pacific Base Command. Its headquarters veterinarian, located in the surgeon's office at Fort Shafter, supervised the command's veterinary operations and technically assisted in preparing the units (such as were temporarily assigned for administrative purposes) that were to be redeployed into the Western Pacific and the Ryukyus campaigns. During August 1944, these activities and personnel of the various components or branches of the Army service forces on Oahu were placed under command control of their respective chiefs of special staff sections in the base command headquarters; thus, the Medical Service, Central Pacific Base Command, was created, effective on 10 August 1944, with the headquarters surgeon as its commanding officer (and likewise, the command's quartermaster became commanding officer of Quartermaster Service which controlled quartermaster units and installations). At about this time, the command's veterinary service organization included:

Veterinary Section, Surgeon's Office, Headquarters, Central Pacific Base Command

Under Medical Service, Central Pacific Base Command:
- Veterinary General Hospital (Provisional)
- 113th Medical Service Company (Veterinary)
- Veterinary Station Hospital (Provisional)

Veterinary Section, Surgeon's Office, Army Port and Service Command

Under Combat Training Command, Central Pacific Base Command:
- 63d, 64th, and 65th Veterinary Animal Service Detachments
- Veterinary Section, Surgeon's Office, Hawaii District
- Veterinary Section, Surgeon's Office, Maui-Molokai
- Veterinary Section, Surgeon's Office, Kauai District
- Veterinary Section, Army Task Force, Christmas Island



FIGURE 24.—Military and civilian veterinarians attending the annual convention of veterinarians in Hawaii, 21–22 June 1945. *Left to right (sitting)*: Dr. J. M. Hendershot; Dr. A. R. Glaisyer; Dr. J. FitzGerald; Dr. E. H. Willers; Col. W. O. Kester, VC; Col. E. DeCoursey, MC; Mr. C. G. Lennox; Dr. A. A. Julian; Dr. L. A. Weight; Dr. W. H. Pang; Dr. R. W. Pinfold; Capt. J. F. Winston. *Left to right (standing)*: Lt. Col. R. H. Yeager, VC; Dr. W. F. Parker; Capt. F. Cowley, VC; Capt. F. W. Clark, VC; Lt. Col. J. D. Manges, VC; Maj. L. T. Fisher, VC; Capt. G. T. Dalziel, VC; Dr. R. N. Beddow; Dr. J. E. Calvin; Maj. E. F. Fink, VC; Lt. Col. F. L. Molt, VC; Dr. C. E. Dow; Maj. R. R. Houser, VC; Maj. F. I. Hammond, VC; Capt. E. B. Miller, VC; Capt. N. E. Johnston, VC; Lt. Col. C. D. Barrett, VC; Lt. G. H. Stuewer, VC; Capt. C. A. Gleiser, VC; Capt. M. Y. Carpenter, VC; Capt. C. M. Hamilton, VC; Maj. H. D. Smith, VC; Capt. A. E. Hancock, VC; Capt. J. A. Rehkemper, VC; Capt. H. B. Studdert, VC; Capt. P. C. Enge, VC; Maj. E. W. Paul, VC.

This list does not include the veterinary sections for several Army garrison forces commands, medical laboratories (including the 14th Medical Laboratory and the 18th Medical General Laboratory), and two veterinary food inspection detachments that were attached for administrative purposes or were being trained and otherwise processed for redeployment in a campaign. Of the units listed, the 113th Medical Service Company (Veterinary) was activated on 11 September 1944 on Oahu and eventually (on 15 March 1945) replaced its parent Veterinary General Hospital (Provisional), and the 63d, 64th, and 65th Veterinary Animal Service Detachments which, after their arrival from the Zone of Interior in early December 1944, were attached to the 4339th, 4340th, and 30th Quartermaster Pack Troops, respectively. The latter were being prepared for use in an amphibious assault operation that was canceled later. As of 31 December 1944, the Army Veterinary Service with the Central Pacific Base Command was provided space authorizations for 27 officers and 192 enlisted personnel (fig. 24).

On 15 March 1945, the Central Pacific Base Command's Veterinary General Hospital (Provisional) was disbanded, and its missions and personnel were divided between the 113th Medical Service Company (Veterinary)

and two new depot veterinary detachments which were improvised for the Quartermaster Service on Oahu, one for the 51st Quartermaster Base Depot, at Kapalama Basin, and the other for the Quartermaster Supply Point No. 1, North Sector, at Schofield Barracks. During March 1945, the 3095th Quartermaster Refrigeration Company (Fixed), with its own veterinary detachment, arrived and was integrated into the operations of the 51st Quartermaster Base Depot. Then, in May 1945, the Veterinary Section, Surgeon's Office, Army Garrison Force, Kwajalein, was transferred from theater control to the jurisdiction of Central Pacific Base Command. Somewhat later, the 306th Veterinary Hospital Detachment arrived on Oahu from the Zone of Interior and was attached to the Veterinary Station Hospital (for training and administrative purposes), and on 6 August 1945, Headquarters, 38th Veterinary Animal Service Detachment, was activated and organized locally to administer the Combat Training Command's three veterinary animal service detachments with the three quartermaster pack troops (but it was temporarily attached to the Veterinary Station Hospital for training and administration purposes). On 5 September 1945, the quartermaster pack troops along with their veterinary detachments were reassigned from the Combat Training Commands to Central Pacific Base Command's Quartermaster Service; on 15 September 1945, the troops were inactivated and their animals, now excess to military needs, were placed under caretaking basis of the 298th Quartermaster Service Company. Concurrently, the 63d, 64th, and 65th Veterinary Animal Service Detachments grouped their personnel and services for these animals.

Shortly after the end of active hostilities, on 1 November 1945, Headquarters, Central Pacific Base Command, lost its identity, with the merger into Headquarters, USAFMIDPAC. The Oahu Medical Service, successor to the original Medical Service Command, then came under direct supervision of the theater surgeon and included the 113th Medical Service Company (Veterinary), the Veterinary Station Hospital (Provisional); 306th Veterinary Hospital Detachment (until its inactivation on 30 November 1945); Headquarters, 38th Veterinary Animal Service Detachment (until its inactivation on 6 December 1945); and the 18th Medical General Laboratory (which was transferred from theater jurisdiction during October 1945). The new Oahu Quartermaster Service, USAFMIDPAC, effective on 1 November 1945, continued the two provisional depot veterinary detachments on subsistence inspection and the three veterinary animal service detachments.

South Pacific Base Command.—This was the continuation of what remained of the former USAFISPA after 1 August 1944. When the Army forces and activities in this original theaterlike Pacific command were reorganized at the organizational level of a base subcommand element of the new USAFPOA, their principal activities were to provide some logistic support to the campaigns in the western areas of the Pacific and to "roll up"

the island bases by the removal of excess supplies. Actually, on account of shortages in shipping space and the great distances to the new areas of combat in the Philippines, Marianas, and Ryukyus, these excess supplies were not completely transshipped out of the South Pacific Area and much of them were disposed of locally. This was particularly true in regard to the subsistence stockpiles—large quantities of which were too old and too deteriorated or damaged for transshipment. On the other hand, most of the Army horses and mules formerly on New Caledonia and Guadalcanal were transshipped to USAFICBI (U.S. Army Forces, China-Burma-India), and more attention was then redirected by the Army Veterinary Service to the inspection of the meat and dairy food industries in New Zealand that were supplying food to the armed services.

On 20 August 1944, Headquarters, Services of Supply, which was administering the service forces organizations, called service commands, on the several island bases, was discontinued, and the various service commands were then consolidated with the tactical headquarters or island commands at these bases to form a single island command. This occured on New Caledonia, Espiritu Santo, Fiji, and Guadalcanal, each having its own island command veterinarian. At about this time, the Army activities on Efate and the Russell Islands were reorganized as subbases to Espiritu Santo and Guadalcanal Island Commands, respectively; also, New Zealand Service Command was redesignated (on 20 August 1944) as U.S. Army Forces, New Zealand; Fiji Service Command became (during October 1944) U.S. Army Forces, Fiji; and Espiritu Santo Service Command became (on 20 November 1944) U.S. Army Forces, Espiritu Santo. Then, during October and November 1944, veterinary services in Fiji, on Efate, and in the Russell Islands were terminated. As of 31 December 1944, the Army Veterinary Service in the SPA (South Pacific Area) had been reduced to a strength of approximately 26 officers and 57 enlisted personnel; these were stationed as follows:

Veterinary Section, Surgeon's Office, Headquarters, South Pacific Base Command

Veterinary Headquarters Company, South Pacific Base Command
Veterinary Section, Surgeon's Office, New Caledonia Island Command:
Veterinary Detachment, 292d Quartermaster Refrigeration Company
Veterinary Section, Surgeon's Office, U.S. Army Forces, Espiritu Santo
Veterinary Section, Surgeon's Office, Guadalcanal Island Command:
Veterinary Detachment, 278th Quartermaster Refrigeration Company
Veterinary Section, 6th Medical Laboratory
Veterinary Section, Surgeon's Office, U.S. Army Forces, New Zealand
Veterinary Detachment, Joint Army-Navy Purchasing Board, New Zealand

During the next year, the rollup of the South Pacific island bases was continued, and as they became available, the Veterinary Corps officers were transferred from the bases to duty in New Zealand with the joint Army-Navy Purchasing Board or to the Central Pacific Base Command for redeployment into the Western Pacific campaigns. In May-June 1945, Head-



FIGURE 25.—Veterinary dispensary and office of Army Garrison Force veterinarian, Tinian, early 1945.

quarters, South Pacific Base Command, was reorganized and renamed Army Service Command-O and then moved from New Caledonia to Luzon, pending the activation of plans for its use as a logistic support organization during the invasion of Japan. Concurrently, New Caledonia Island Command, with its staff veterinarian, moved into control of and, in fact, became the new headquarters of South Pacific Base Command.

Western Pacific Base Command.—This command, the last of the three base subcommands to be established in the CPA, was created, effective on 25 April 1945, to administer the Army garrison force commands which had followed the joint Army-Navy landings that were made in the Marianas and Palau groups and on Iwo Jima. Originally, these garrison forces, each with veterinary officers as assistants to the respective garrison force surgeons, were organized as provisional headquarters groups in the Hawaiian Islands and were shipped in time to arrive at destination 7 to 10 to 50 days after the initial assault landings were made. The Army garrison force veterinarians set up stations on Saipan on 25 June 1944, on Tinian on 11 August 1944 (fig. 25), on Guam on 10 August 1944, on Angaur during October 1944, and on Iwo Jima in early March 1945. Usually, one or more veterinary food inspection detachments accompanied the move of these garri-

son force organizations from the Hawaiian Islands, or arrived at a later date directly from the Zone of Interior; others were activated and organized on the islands. These included the 113th (Provisional) and the 742d (formerly JJ) Veterinary Food Inspection Detachments from the Hawaiian Islands; the 147th and 148th which arrived during March and April 1945 from the Zone of Interior; and the 745th, 746th, and 747th Veterinary Food Inspection Detachments which were activated and organized effective on 25 June 1945 within Western Pacific Base Command. In addition, on Saipan, there was the 12th Medical Laboratory complete with a veterinary section, which arrived from the Zone of Interior during May 1945; during the next month, a veterinary officer with the 821st Hospital Concentration Center arrived from the Zone of Interior to augment the existing veterinary service organization on Tinian. As of mid-1945, the Western Pacific Base Command included:

Veterinarian, Surgeon's Office, Headquarters, Western Pacific Base Command

Veterinarian, Surgeon's Office, Army Garrison Force, Saipan:
- 742d and 747th Veterinary Food Inspection Detachments
- Veterinary Section, 12th Medical Laboratory

Veterinarian, Surgeon's Office, Army Garrison Force, Tinian:
- 148th Veterinary Food Inspection Detachment
- Veterinarian, 821st Hospital Concentration Center

Veterinarian, Surgeon's Office, Army Garrison Force, Guam:
- 174th, 745th, and 746th Veterinary Food Inspection Detachments

Veterinarian, Surgeon's Office, Army Garrison Force, Angaur

Veterinarian, Surgeon's Office, Army Garrison Force, Iwo Jima:
- 113th Veterinary Food Inspection Detachment (Provisional)

These Army garrison forces were comparable to the service commands which were formed earlier in the war in the outlying Hawaiian Islands or to the service command organizations on the South Pacific island bases. Throughout the Western Pacific Base Command, the garrison forces veterinarians provided such professional services as were required by all of the armed services on the islands, including Marine Corps ration dumps, military dogs, and civil affairs and military government activities which were Navy-administered. More often than not, the garrison forces veterinarians acted at the staff level of the respective local island command headquarters, and at least one Navy-administered island command recognized the Veterinary Corps officer officially on orders as island command veterinarian.

Tenth U.S. Army and Other Ground Forces

The beginning of the war found no ground forces units with organically assigned veterinary personnel in the CPA. There were two divisions, the 24th Infantry Division and the 25th Infantry Division, which were organized in the fall of 1941, but these had no assigned veterinary officers until the next year or prior to their departure from the Hawaiian Department.

The 25th Infantry Division departed during July 1942 for participation in the Guadalcanal Campaign, then under operational control of USAFISPA, and the 24th Infantry Division was "lifted out" a year later for deployment in the SWPA. The following divisions, each with their own division veterinarians, came into the Hawaiian Islands: The 27th Infantry Division in the spring of 1942, followed later that year by the 40th Infantry Division, and then, during 1943, the 7th Infantry Division, which had participated in the Aleutian campaign, and the 33d Infantry Division. Soon after mid-July 1943, when new War Department T/O's (tables of organization) for the standard new type (triangular) infantry division unit discontinued the veterinary personnel space authorizations, the 7th, 27th, 33d, and 44th Infantry Divisions dropped their division veterinarians. During April 1944, Headquarters, XXIV Corps, was activated and organized, but it, too, had no assigned veterinarian because T/O's for the standard army corps headquarters, as revised in March 1943, did not authorize a corps veterinarian. Later, the XXIV Corps participated in the Leyte campaign and was returned to the CPA in the spring of 1945 when it was assigned to Tenth U.S. Army to participate in the Ryukyus operation. The largest ground forces unit in the CPA, however, did have its own veterinary personnel; namely, Headquarters, Tenth U.S. Army. This arrived on Oahu from the Zone of Interior during September 1944, and subsequently, in the spring of 1945, directed the landings and campaign on Okinawa, Ie Shima, and other Japanese islands in the Ryukyus chain.

Preparatory to departure for Operation ICEBERG, Tenth U.S. Army's veterinary organization was built up, in the Central Pacific Base Command, to include the veterinary sections of the 14th Medical Laboratory (which in July 1944 had been activated and organized locally from the former Hawaiian Department, or Central Pacific Area, Medical Laboratory); the 53d Medium Port (activated and organized during the fall of 1944); the 279th Signal Pigeon Combat Platoon; and several Army garrison forces headquarters. The latter included Army Garrison Force, Okinawa; Army Garrison Force, Ie Shima; Army Garrison Force, APO 458, which after V–J Day was diverted from Okinawa to Korea; and Army Garrison Force, APO 457, which did not leave the Hawaiian Islands, it being discontinued on 15 July 1945. There was also a joint Army-Navy island command headquarters staff that was planned to regulate all military operations (including the Army Garrison Force, Okinawa) in the areas behind the Tenth U.S. Army. However, soon after the landings were made, Headquarters, Island Command, Okinawa, seemed to have absorbed Headquarters, Army Garrison Force, Okinawa, so that by early May 1945, service forces veterinary activities were being supervised by an island command veterinarian, who had been elevated in the level of military organization from his former position as garrison force veterinarian. This administrative change enhanced the coordination of the rear area veterinary activities with that of the Tenth

U.S. Army and with the separate military government organization in regard to civilian affairs on Okinawa. Also, veterinary services were provided to the Marine Corps combat forces, particularly in the inspection of their food supply; it may be added that a few captured horses were processed for the Marine Corps to mount a provisional pack train for hauling ammunition. During May 1945, the Army Veterinary Service on Okinawa gained the 142d, 143d, 144th, 145th, and 149th Veterinary Food Inspection Detachments, and that on Ie Shima gained the 146th Veterinary Food Detachment—these detachments arriving by direct movement from the Zone of Interior. Effective on 1 August 1945, operational control over Tenth U.S. Army, Island Command, and other units and personnel in the Ryukyus was transferred from USAFMIDPAC to the jurisdiction of USAFPAC; concurrently, the Okinawa Base Command was created to administer the local service forces.

Seventh and Twentieth Air Forces

The Seventh Air Force, or the Hawaiian Air Force as it was referred to before February 1942, originally was provided attending veterinary services at its Hickam Field and Wheeler Field installations. On 19 June 1942, a Veterinary Corps officer was assigned full-time duty at Hickam Field, with additional duty as the theater's air forces veterinarian. During this time, a senior headquarters organization was superimposed over the Seventh Air Force which changed its name from AAF, Hawaiian Department, to Headquarters, AAF, CPA, in August 1943, and a year later, to Headquarters, AAF, POA. By the end of 1943, the foregoing included a veterinarian in the headquarters medical section. Sometime later, veterinary detachments as part of the air service command were established at Hickam, Wheeler, and Bellows Fields on Oahu.

The other air forces unit in the CPA having its own veterinary service organization was the Twentieth Air Force, particularly its XXI Bomber Command. This command operated the long-range bomber (B–29) program against the Japanese mainland and was controlled by the Commanding General, AAF, in Washington, D.C. The XXI Bomber Command started to move from the Zone of Interior into the Marianas during the fall of 1944 and, in December 1944, was joined on Guam by the 5th Veterinary Detachment, Aviation (made up of a basic detachment and two subsections). The latter provided food surveillance inspection at all B–29 airbases which were established, including those of the Twentieth Air Force's XX Bomber Command which came into the Marianas during the early months of 1945 from the bases in India and China from which it had been operating since the opening months of 1944. Another air forces organization was the Pacific Wing, Air Transport Command, which operated from its headquarters established in February 1943 at Hickam Field and covered the aerial route through the CPA from the United States to New Caledonia

in the SPA. During 1945, a veterinary officer was added to the wing surgeon's office.

U.S. ARMY FORCES IN SOUTH PACIFIC AREA

The USAFISPA, with headquarters at Nouméa, was created on 7 July 1942 to supervise and coordinate the several Army task forces that had begun to move into the South Pacific islands since the beginning of that year. By mid-1942, Army troop strength in this area, which was the assigned command responsibility of the Navy, approximated 60,000 air, ground, and service units. It included the Americal Division on New Caledonia, the 37th Division in the Fiji Islands, and a scattering of smaller defense forces on New Zealand, on Togatabu in the Tonga Island group, Bora Bora in the Society Islands, on Upolu and Wallis Islands in Samoa, and, later that year, on Tongareva and Aitutaki in the Cook Islands. Veterinary personnel had come into the area with the American First Task Force—later (in May 1942) reorganized as the Americal Division—which had landed on New Caledonia on 12 March 1942, and with the 37th Division which arrived during April 1942. On New Caledonia, also, there were the 97th Field Artillery Pack Battalion and Troop A of 252d Quartermaster Remount Squadron, both with their own veterinary detachments, which had arrived on 1 April and 7 July 1942, respectively. The veterinary service organization on New Caledonia continued to expand throughout the remainder of 1942. The 112th Cavalry Regiment arrived on 11 August, and the 283d Quartermaster Refrigeration Platoon, Fixed, and the 43d Infantry Division arrived during November; before the end of the year, as the Americal Division was departing for the campaign on Guadalcanal, the 43d Infantry Division arrived from the Zone of Interior. On Guadalcanal, the Americal Division was joined, during December 1942, by the 25th Infantry Division, originally from the Hawaiian Department. These four combat divisions then had their own assigned division veterinarians. Including the veterinarian with the 1st Port of Embarkation that set up station on New Zealand in December, the Army Veterinary Service with USAFISPA, as of the end of 1942, comprised 13 officers.

This number of veterinary officers also included the theater veterinarian, who, soon after his arrival from the Zone of Interior, in late September 1942, was assigned to the Surgeon's Office, Headquarters, USAFISPA.[2] The assignment did not last for any great length of time because, on 9 December 1942, he was transferred to the theater's service of supply organization that had been developing during the past 2 months. After that date, the position of the theater's chief veterinary officer fluctuated between

[2] Theater veterinarians, or senior veterinary officers acting in that capacity, included: Maj. J. H. Boutin, VC (28 September 1942–27 March 1943), Col. H. E. Watson, VC (6 October 1943–26 May 1944), and Col. E. E. Hodgson, VC (late July 1944–1 August 1944). Capt. R. O. Moore, VC, served as interim theater veterinarian at the level of Headquarters, Services of Supply (May 1944–July 1944).

Headquarters, USAFISPA, and Headquarters, Services of Supply, SPA, and for a period of 7 months there was none. During March 1943, the aforementioned veterinary officer was released from his Services of Supply staff position for reassignment elsewhere, and no successor staff veterinarian was named immediately. Then, on 6 October 1943, a Veterinary Corps officer newly arrived from the Zone of Interior was assigned as assistant to the Surgeon, USAFISPA, and this office of theater veterinarian was continued until May 1944 when (for physical disability) the incumbent was evacuated to the United States. Somewhat later, the theater's veterinary service organization was administered by a company grade officer, assigned to Services of Supply headquarters, who was replaced only during the last few days of July 1944 by a senior veterinary officer, the third to be so assigned, who had arrived from the Zone of Interior for duty as staff veterinarian in Headquarters, USAFISPA.

During this period, beginning in the fall of 1942, Army and Marine Corps divisions had moved northward, island by island, through the Solomons and by March 1944 had landed on Emirau in the Bismarck Archipelago; this last operation ended the tactical mission of the SPA. As of the end of 1943, the Army Veterinary Service in the theater command included 26 officers and 81 enlisted personnel, but new additions of service forces units during the next few months increased this strength to 40 Veterinary Corps officers. The additions included the arrivals, during February 1944, of the 278th Quartermaster Refrigeration Company, Fixed, and 6th Medical Laboratory on Guadalcanal, and, during March 1944, of the 292d Quartermaster Refrigeration Company, Fixed, on New Caledonia—the latter taking the place of the original 283d Refrigeration Platoon which had departed from the theater during August 1943 (fig. 26). As of June 1944, the Army Veterinary Service with USAFISPA was distributed as follows:

Surgeon's Office, Headquarters, Services of Supply, SPA

Veterinary Detachment, South Pacific General Depot
Veterinary Detachment, 292d Quartermaster Refrigeration Company, Fixed
Veterinary Detachment, 112th Cavalry Regiment (Dismounted)
Veterinary Detachment, Troop B, 251st Quartermaster Remount Squadron (successor to Troop A, 252d Quartermaster Remount Squadron)
Medical Section, Guadalcanal Service Command:
  Veterinary Section, 6th Medical Laboratory
  Veterinary Detachment, 278th Quartermaster Refrigeration Company, Fixed
Medical Section, New Zealand Service Command
Medical Section, Fiji Service Command
Medical Section, Espiritu Santo Service Command
Medical Section, Efate Service Command
Medical Section, Russell Islands Service Command
Medical Section, Bougainville Service Command
Medical Section, Treasury Islands Service Command
Medical Section, New Georgia Service Command
Medical Section, Emirau Service Command
Medical Section, Green Islands Service Command
Veterinary Detachment, Joint Army-Navy Purchasing Board, New Zealand

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FIGURE 26.—Col. Wayne O. Kester, VC, Veterinarian, Pacific Ocean Areas, and Col. Ernest E. Hodgson, VC, comparing the keeping qualities of meat and dairy products received on New Caledonia from the United States and New Zealand.

By June 1944, with the termination of the tactical mission of SPA, USAFISPA was beginning to be disassembled. During June 1944, the more northerly located bases of the Solomon Islands group and in the Bismarck Archipelago were transferred to the jurisdiction of SWPA (and eventually reorganized under the administrative control of U.S. Army Forces, Northern Solomons), as were most of the air and ground forces—some, however, not moving until much later in the year. Effective on 1 August 1944, USAFISPA was inactivated and such as remained was reorganized as South Pacific Base Command, as this area was being added to the CPA Area in the formation of the newly created USAFPOA.

Services of Supply, South Pacific Area

The services of supply organization of USAFISPA originated with the formation in mid-October 1942 of a service command at Auckland, New Zealand. In September 1942, this service command headquarters was redesignated and moved to Nouméa, and, before the end of the year, the nominal chief veterinarian for the theater was assigned to it. The services of

supply headquarters coordinated and supervised service forces personnel and activities on the various island bases which were administered by local service command headquarters—one for each major island base. The service command acted as the logistic support force, such as for the receiving, storing, and distributing of subsistence, to all Army air and ground troops and Navy and Marine Corps units which were located on a given island, the latter being centrally grouped under an island command. This organization in the SPA of an island command and a service command at each base was comparable to the district (or Army tactical) headquarters and the service commands that were set up in the Hawaiian Islands in early 1942. (Of course, island commands could be Army, Navy, Marine Corps, or Air Forces administered.)

Unless a Veterinary Corps officer belonged to the Army tactical unit which administered a particular island command headquarters, then there was no island command veterinarian. Thus, until June 1943 on Guadalcanal, the veterinarian of the 25th Infantry Division was detailed additional duty with the Surgeon's Office, XIV Corps, and then in turn, as island command veterinarian. Elsewhere, veterinary officers on assignment to most island bases became service command veterinarians; actually, few service command veterinarians were ever assigned when the service forces organizations on the islands were created because there was no base plan or so-called manning tables for organizing the service command headquarters staffs uniformly on the bases throughout the SPA.

As a result, most service command veterinary operations, particularly those relating to food inspection on the various island bases, were late in starting, being set up in New Zealand during December 1942, on New Caledonia during November 1942, in the summer-fall of 1943 in the Fiji Islands, on 10 May 1943 on Espiritu Santo, during February 1944 on Efate, on 18 January 1944 in the Russell Islands, and during June 1944 on Guadalcanal. On New Caledonia, a general depot organization was developed under service command control, and, though a large subsistence stockpile was developed, the theater's largest ration storage and distribution centers were located in New Zealand and operated by the Joint Army-Navy Purchasing Board located there. The Guadalcanal Service Command became a major subsistence supply base in logistic support of the subsequent fighting in the SPA. As the fighting advanced up through the Solomons and into the Bismarck Archipelago, additional service commands were formed, and service command veterinarians came on duty on New Georgia in November 1943, in the Treasury Islands during April 1944, on Bougainville during late December 1943, in the Green Islands on 23 May 1944, and in the Emirau Islands on 28 May 1944. Though the dates for veterinary services on many bases seem to be relatively late, the foregoing relates only to service commands of the Services of Supply. Actually, division or task force veterinarians sometimes had arrived earlier with the landing or assault troops and

then departed before the service command-assigned veterinarians arrived—the unfortunate situation being that there was interruption in the continuity of veterinary activities at many bases.

Veterinary animal service activities in the SPA originally developed about a remount depot and two mounted combat units, but, before these had been closed or dismounted and the horses and mules transshipped out of the theater to USAFCBI, the inspections of food had become the major activity. In regard to animals, the 97th Field Artillery Pack Battalion, on arrival on New Caledonia, procured an estimated 180 animals locally and began to receive the first two of nine shipments of 2,032 horses shipped from USAFIA (U.S. Army Forces in Australia). (Actually, 10 shipments totaling 2,515 horses were made from Australia, but one animal transport was sunk en route by an enemy submarine.) Later, with the arrival of Troop A, 252d Quartermaster Remount Squadron, which received and processed mule shipments from the Zone of Interior and Panama Canal Department, the battalion exchanged most of its horses for the mules and then departed with 947 animals during January-February 1943 for Guadalcanal, but only few of the animals were actually used before the campaign there was ended. In March and May 1944, the battalion's animals, such as remained, were transshipped out of the theater to USAFICBI. In the interim, on New Caledonia, the depot issued large numbers of horses to the 112th Cavalry Regiment, which had arrived there during August 1942 and was deployed to patrol duty along the coastline. However, in May 1943, the regiment was dismounted and transferred to the SWPA, but its veterinary detachment was retained at the remount depot to assist in the care of the turned-in regimental animals. The depot unit, Troop A, 252d Quartermaster Remount Squadron, which in January 1942 was returned on paper to the Zone of Interior but was replaced by the newly activated and locally organized Troop B, 251st Quartermaster Remount Squadron, began to ship its holdings of the excess animals to the China-Burma-India theater in September 1943 and, soon after the last animal transport was embarked, was disbanded (on 15 October 1944). During September 1944, the 112th Cavalry Regiment's veterinary detachment departed to join its parent unit in the SWPA. The veterinary service with USAFISPA provided veterinary care for an average animal (horses and mules) strength of 1,785. During the period from May 1942 to July 1944, there were 4,313 admissions, and 466 animals died or were destroyed.

Subsistence supply to USAFISPA originated from the Zone of Interior, from the SWPA, and from sources in New Zealand where a Navy-administered joint procurement agency, the Joint Purchasing Board, was established. At the beginning, these foods were received, stored, and issued under the technical supervision of divisional veterinarians and veterinary personnel belonging to the island commands at the various bases. During the winter months of 1942–43, these veterinary surveillance inspections of

the Army's subsistence supplies on New Caledonia and Guadalcanal were formally organized with the arrivals of the veterinary detachments of two quartermaster refrigeration units, but, elsewhere throughout the South Pacific bases, except on New Zealand, this kind of surveillance was only temporary or sporadic. Usually, after the tactical division veterinarian departed from a given base, several months elapsed before another service forces veterinarian arrived on that island to resume a veterinary food inspection program. This program, pursuant to the definition of responsibilities of the services of supply organization on the island bases, pertained not only to the food supplied to the Army and airfields but also, after the spring of 1943, to the subsistence supply of naval shore installations and Marine Corps units on the islands. Taking into account the interrupted veterinary food inspection services, the heat and humid climatic conditions of the area, and the rapid, haphazard buildup of large stockpiles that were left behind when the tactical forces departed for another island invasion, it was obvious that considerable quantities of food became unsuitable for use and ultimately were recommended for condemnation.

Frequently, when the services of supply organization assigned veterinarians to the service commands, the latter on arrival found the subsistence supplies to be in open areas, uncovered except possibly for a tarpaulin thrown over the stacks and without flooring and interstack dunnage; the high piles had buried the lowermost cases into the coral sand. As was true at the New Guinea bases, the ration dumps were built hurriedly, and there were no permanent or proper semipermanent structures of any sort for storage. Deterioration and spoilage, being a nonreversible process in nonperishable subsistence, had already advanced to the degree that little of the subsistence, now surplus to the rapidly "cutbacked" bases, could be reclaimed by salvage procedures for reshipment to other bases. Of course, sometimes there were not enough shipping vessels available to theater control for transporting these supplies from one island base into the next island campaign. As a result, beginning in 1944, the veterinary food inspection activities in the SPA were diverted from that of surveillance to prevent or minimize food losses and deterioration to that of surveillance to prevent the distribution of unsound foods to troops. For example, during the first 7 months of 1944, the quantities of meat and dairy products condemned following veterinary inspection totaled more than 10 million pounds.

Joint Army-Navy Purchasing Board, New Zealand

In New Zealand, the principal rear supply base for feeding the South Pacific forces, the Army Veterinary Service encountered many problems not experienced elsewhere in the theater. During the winter months of 1942–43, veterinary officers assigned to divisional, port, and general hospital units in New Zealand advised on certain conditions that should have governed the procurement operations of the Joint Army-Navy Purchasing Board, including

the development of adequate and proper Army veterinary food procurement inspection services. However, nothing came of these recommendations, because senior administrators adopted policies of leniency for accepting supplies at regular prices, with little or no inspection, and generally supported the contentions by New Zealand officials and food industries that anything from the country's export trade was acceptable on the history of past, peacetime reputation for quality products.

Of course, in New Zealand, there was a national agricultural inspection agency that was recognized by the U.S. Department of Agriculture; therefore, the inception of Army veterinary food inspection services to cooperate with that agency, although these services were primarily to safeguard the quality of the Armed Forces subsistence supply, seemed to present a political problem (which did not arise) that the Navy command desired to avoid, at least in New Zealand. On the other hand, the Joint Army-Navy Purchasing Board accepted, as perhaps necessary, that the foods after their arrival at Army bases and before issue to the messhalls would be inspected. The early studies on Veterinary Corps inspection of subsistence procurement in New Zealand centered about the quality of the food rather than about its wholesomeness.

There was no concept, for example, by the Navy-administered agency that bobby veal livers (from immature calves or calves in the uterus of cows which were slaughtered) comprised a part of the reputable New Zealand export pack or that the procurement of fresh fluid milk and canned evaporated milk in New Zealand would have to be terminated because of *Bacillus coli* contamination.[3] Also, by the fall of 1944, it had become evident, even to the joint board, that 10 percent spoilage in the canned evaporated milk procured in New Zealand was too great without an investigation of its procurement program, and this factor, together with the *B. coli* contamination and the existence in the industry of a great many insanitary practices and equipment that could not or would not be corrected, finally led to the termination of procurement of this commodity. In regard to poultry, an undeveloped industry, the Army Veterinary Service alone set up the standards of sanitary quality control. It was remarkable, also, that the Navy-administered joint procurement board took no immediate and firm steps to prohibit the admixture of boric acid to the curing agents used in the New Zealand production of bacon and ham. In any event, during the summer-fall of 1943, for the first time, one Veterinary Corps officer was assigned full-time duty with the joint procurement agency; there were then 15 bacon plants, 38 meat plants, and 20 dairies (involved in the manufacture of cheese) under contractual obligation, and large quantities of subsistence were being held in commercial warehouses and cold storage plants for reshipment to, or in reserve for, the island bases.

[3] In the instance of both products, the contamination was reported from the island bases and not by the board or New Zealand agencies who maintained little or no laboratory control.

During February 1944, 10 officers were added to the Inspection Division, Joint Purchasing Board, and were assigned to the six area (or field) offices at Auckland, Wellington, New Plymouth, Palmerston, Napier, and South Island. In two areas, the local inspection divisions, consisting of a meat and dairy products branch and a vegetable branch, were headed by veterinary officers. As of 1 June 1945, the Army Veterinary Service with U.S. Joint Purchasing Board, SPA, totaled 11 officers and 55 enlisted personnel. Between July 1942 and December 1945, more than 500 million pounds of foods of animal origin were inspected at the time of procurement or delivery in New Zealand; in the period from 1 July 1942 through 30 November 1944, for which such data are available, the inspection of 366,035,144 pounds of this amount (valued at $52 million) included—

	Pounds
Fresh, frozen meat	195,175,097
Canned meat	61,931,657
Bacon and ham	39,245,261
Butter	37,910,627
Cheese	12,674,182
Canned evaporated milk	19,098,320

Thirteenth Air Force

The Thirteenth Air Force, activated in January 1943, with headquarters stationed initially on Espiritu Santo, seemed to have had no organically assigned veterinary personnel during its stay in the SPA. In fact, the position vacancy for that air force headquarters veterinarian, such as was prescribed by T/O's, was occupied by a flight surgeon (*2*). However, as will be mentioned later, in the fall of 1944 when the unit moved into the SWPA, the 4th Veterinary Detachment, Aviation, was activated and organized specifically for duty with the Thirteenth Air Force.

U.S. ARMY FORCES IN THE FAR EAST

Philippine Islands Campaign

The Army Veterinary Service with the USAFISWPA included that of the original Philippine Department which was lost in the defense of the Philippines, 7 December 1941 to 10 May 1942, against Japanese aggressors, and that which was established in Australia in April 1942. At the onset of the war period, the Philippine Department included the department veterinarian[4] who supervised veterinary food inspection activities and professional animal services at six installations (*3*, *4*, *5*). There were veterinary hospitals in operation at Manila, Fort William McKinley, and Fort Stotsenberg, and veterinary officers were assigned to duty with four mounted units of the Philippine Scouts organization: 26th Cavalry Regiment, Battery

[4] Department veterinarians included Col. Mott Ramsey, VC, from February 1941 to 3 May 1942, when he was evacuated from Corregidor for return to the United States as a hospital patient, and Lt. Col. J. W. Worthington, VC, who acted as department veterinarian through the last weeks of the fight on Bataan.

A of 23d Field Artillery Battalion, and 65th and 66th Separate Quartermaster Troops (Pack). In addition, there was a veterinary company unit with headquarters at Fort William McKinley, but this did not become operational because most of its enlisted personnel were transferred to duty with the foregoing units. As of mid-1941, Army horse and mule strength in the Philippine Department approximated 1,650 animals. During July 1941, the department's troops and such Philippine Army units, as were being inducted into military service of the United States, had been regrouped to better the local defenses and were designated as USAFFE. Therewith, the Philippine Department was reduced to the status of a service forces organization. The headquarters special staff sections, however, were generally left intact, so the department veterinarian was continued as the principal veterinary officer in the area. There were 12 veterinary officers in the Philippines as of December 1941.

After the Japanese landed in the Philippines (on 9 December 1941), the life of this veterinary service organization was brief but dramatic. Before Christmas Day, the U.S. forces started their withdrawal to Bataan peninsula, and, on 2 January 1942, the Japanese occupied Manila. By the end of that month, animal losses totaled 501, including those dying or destroyed on account of disease and injury, wounded and killed in action, or destroyed to prevent their capture. For January 1942, the monthly mean strength was 894 horses and mules, these being distributed between Fort Mills (46), the cavalry regiment (300), the field artillery battery (125), and the two pack troops (268 and 155, respectively). During the next few months, veterinary officers with these mounted units acted to establish troop medical aid stations, treated sick and wounded animals, scattered the animals when the Japanese threatened to capture them, and eventually set up corrals on Bataan from which animals were sent for slaughter to provide meat to the forces. One veterinary officer was stationed on Corregidor, the island fortress for Manila; another was stationed at the City of Cebu; while another was redetailed into Cavalry to take command of a mechanized troop of the 26th Cavalry Regiment after it was dismounted. Probably, the most important activity by the Army Veterinary Service on Bataan concerned the foraging for carabao and the development of a fresh meat supply for the forces (*3*).

The inspection of food supplies was modified by the acute shortage of normal army rations. To augment this supply the slaughter of army horses and mules, of native carabao, the full development of Bataan's fishing resources, and the importation of beef from nearby islands offered the most promising possibilities. With this problem in mind, upon my arrival in Bataan, I made a hasty reconnaissance of the peninsula in order to estimate the total number of carabao available that might be slaughtered for food purposes. Approximately 2,200 were found south of our Abucay-Moron line. As it was estimated that our consumption on full ration would require at least 1,000 carcasses per month, I made recommendations to the Quartermaster that fifteen to twenty thousand carabao be immediately herded into the lower Bataan area, from the Abucay-Lubao region, and held there as an emergency reserve. Since carabao seem to thrive upon any

kind of vegetation, the problem of their food supply was of only secondary importance. The Quartermaster thought it was a most excellent idea, but took no necessary steps towards its accomplishment. Thus the last opportunity for securing a full year's reserve supply of fresh meat soon vanished.

Urgent necessity, however, required that greatest possible advantage be made of the limited available supply. I, therefore, submitted a program, in detail, to the General of the Bataan Defense Forces, recommending appropriate steps designed to insure the delivery of fresh meat to troops in the field. This program was approved without change, and delivery was accomplished with very little trouble, interruption, or irregularity from 3 January 1942 to 8 April 1942.

This program was based upon the utilization of Veterinary Personnel of the Philippine Army, together with civilian laborers, since all Regular Army personnel of the Veterinary Service, under Colonel Ramsey, was otherwise assigned. Our organization included 16 veterinarians (officers) and 45 enlisted men (Philippine Army) and approximately 200 civilians. The full program consisted in the procurement, transportation, and slaughter of carabao, the veterinary inspection of the dressed carcasses, and the transportation of the fresh meat to the Quartermaster Dumps and to troop kitchens in the field. All of these functions were performed under my direct supervision, by officers and enlisted men of the Philippine Army Veterinary Service, since no help from Regular Army Veterinary Personnel was available except toward the end of the campaign when certain officers and enlisted men became surplus in their own organizations.

Purchase of the carabao was a big undertaking in itself, since properly authenticated vouchers, by owners and 2 witnesses, were required in each individual case. For this purpose I secured the appointment of Captain Faustino F. Turla, Veterinary Corps (P.A.) as agent officer. Captain Turla is an exceptionally able, intelligent, and conscientious officer, with legal training in addition to his veterinary qualifications. Captain Turla performed all of his duties in a very highly efficient and commendable manner. I frequently received very pleasing compliments from the Luzon Force Finance Officer regarding the excellence of Captain Turla's records and accounts.

Our policy was to operate, on all occasions, as far forward as possible, in order to secure every available carabao. Native civilian employees, working under my supervision, beyond our lines, helped materially in augmenting the supply, by slow pressure and by a gradual working of animals across the lines. Approximately 1,800 additional carabao were secured by this method.

The initial price paid for a mature carabao, determined upon in conference with the Governor of Bataan, and Mayors of Pilar, Balanga and Orion, was sixteen pesos (P 16.00). Approximately 1,000 carabao were purchased at this average price. Later, by order of the Quartermaster, the price was fixed at sixty pesos (P 60.00) for full-grown animals. Even higher prices were paid as the supply finally dwindled toward the vanishing point.

In a few instances carabao were lost after purchase, due to enemy bombing of temporary enclosures, and to breaks in the Quartermaster corral fences. Branding of animals at time of purchase was resorted to in order to prevent their possible repurchase since identification was otherwise impossible. Sabotage in at least one instance seems to have been responsible for the release of carabao after purchase. However, the average price of all carabao purchased, including losses, would appear to be well within reason. While accurate figures are unobtainable at the present time, the cost per pound of the dressed carcass and edible offal is estimated as approximately that for fresh beef otherwise purchased by the U.S. Army for the same period.

For sanitary reasons our veterinary field abattoirs consisted of a bridge or platforms, across swiftly flowing mountain streams, upon which the carabao were slaughtered. The pollution of the stream was prevented by the hauling away of all inedible offal and refuse, and its burial in deep trenches. At the same time, an ample supply

of clean, fresh water was always available for cleaning and scrubbing of the killing floor, so that a maximum degree of sanitation was possible at all times. Overhanging trees and tropical vegetation provided excellent camouflage. Bombing caused us no inconvenience at any time. Veterinary inspection of carcasses proceeded normally as the dressing operations progressed. Approximately one per cent (1%) of all animals slaughtered were rejected for sanitary reasons, about 90% of all carabao livers were rejected because of excessive infestation with liver flukes. Approximately 65,000 pounds of meat was lost after slaughter, due to the bombing of the cold storage plant on Corregidor and for other unavoidable causes incident to hostilities.

Dressed carcasses, loaded immediately on waiting trucks, were transferred to Quartermaster Dumps or field kitchens, wherever trucks could travel in Bataan. Four heavy trucks were in constant use for this purpose. Deliveries were made daily to Quartermaster Dumps and three times weekly to hospitals and field kitchens. Approximately 120 separate units received daily delivery service. Because of the absence of any kind of refrigeration, immediate delivery was imperative. A maximum of six to eight hours from slaughter to delivery could not safely be exceeded. Most of the deliveries were made in less than four hours from the time of slaughter. Some unavoidable losses occurred at Q.M. dumps, due to a failure of organization in calling for supplies according to prearrangement of schedules.

Thirty to fifty animals daily were required for routine deliveries, but 50 to 60 additional carabao were slaughtered daily and delivered to Corregidor for cold storage whenever refrigeration space was available. Approximately 100 carcasses were also stored in the refrigeration plant of the submarine tender "Canopies," lying in Marivales Harbor. Cold storage facilities on Corregidor were inadequate for the emergency. Bombing put the plant out of commission at one time before the fall of Bataan, causing the loss of approximately 300 quarters of beef. With adequate, bomb-proof capacity on Corregidor we could have procured and slaughtered enough carabao for fresh meat to have carried us through a much longer emergency.

The quality and edibility of the better grades of carabao beef correspond closely with grades 3 and 4 ("Good" to "Good Medium") which are the grades usually purchased by the U.S. Army. Much carabao meat was sold on the Manila markets before the war. Tests have amply demonstrated that practically no laymen and but few "experts" are able to detect any difference between the properly cooked meats of similar grades of cattle and carabao. It would appear that the breeding of carabao in the tropics for beef purposes, should be encouraged, not only because of edibility, but more especially, because they are easy keepers, thriving in emergency, on most any kind of tropical vegetation; and also, because they are much more resistant to tropical diseases than are American or other foreign breeds of imported cattle.

A total of approximately 4,000 animals were slaughtered in Bataan for food purposes. Of these, approximately 320 were horses, 87 mules, 150 cattle, 100 hogs, and the rest carabao. It is estimated that 1,200 carabao were slaughtered by front line troops located beyond the reach of our delivery trucks. This method of slaughter was very uneconomical; no sanitary inspections were possible, and no records were kept; but due to extreme shortage of food and the difficulties of transportation it was more practicable to lead the animals in for local slaughter than to attempt packing fresh meat from the Q.M. Dumps. No reasonable objection could therefore be offered to this method, since all the Veterinary personnel had been withdrawn from these units for service with me, back at our Field Abattoir.

Approximately 2,800 animals were slaughtered at our Field Abattoirs. Two million pounds of fresh meat were delivered to troops in the field, and three quarters (¾) of a million pounds of edible offal was delivered to refugee camps in Bataan. These amounts materially augmented the total food supplies in Bataan, and, according to Brigadier

General Allan C. McBride, Commanding General, Bataan Service Command, and others closely associated with our work, enabled our forces to hold out for from 4 to 6 weeks longer than would otherwise have been possible. Had it not been for the loyal support given me by the Veterinary officers and enlisted men of the Philippine Army, these results would not have been possible.

This entire program was undertaken and carried out because there was no other organization technically qualified, equipped, or ready to volunteer for the emergency. Strictly speaking, it was Quartermaster activity in its entirety, except the sanitary inspection of the meat supply. The Veterinary Service very gladly performed these additional duties for the benefit of all concerned.

The importation of meat from other islands was not practicable, because of Japanese control of all adjacent waters, but the potentialities of fishing resources of Bataan were recognized from the inception of the Bataan campaign. The Quartermaster attempted to coordinate all fishing activities but without any tangible success. Later, the commander of the Bataan Force Service Command requested that I undertake these operations, in addition to my other duties. Accordingly, early in March 1942, I was designated "Coordinator of the Bataan Fisheries" and given complete control of all phases of these activities.

Inasmuch as the Bataan waters were one of the chief sources of Manila's fish supply before the war, it was only a matter of time and intensive organization before former standards could be reached and rapidly surpassed. The chief difficulty was in the fact that the use of all the 16 immense fish corrals, or traps, located along the Bataan shore of Manila Bay, had been discontinued. They were all badly in the need of extensive repairs. The nets, in most cases, had been stored in remote hide-outs and when located, were also found to be worn and in need of extensive repairs. Lack of cooperation and coordination, failure to pay owners for fish caught, confiscation of fish after being caught, and a general antagonistic attitude toward the native fishermen, during the early phase of the Bataan campaign, seemed to be the general excuses for the discontinued fishing activities of the natives. When it is realized that these 16 traps furnished the Manila markets with from 10 to 50 thousand pounds of fish daily, before the war, their importance to our beleaguered troops in Bataan cannot be overestimated. Accordingly, my first object was to get all of these traps back into operation in the minimum possible time. After locating the troubles, the remedies were largely routine. When the owners were fully assured that no further interference would be tolerated, they were readily induced to cooperate in restoring their property to normal use.

Again Captain Turla's services were invaluable in gaining the confidence and enthusiastic cooperation of the native fisherman. All 16 traps were being rapidly repaired and full production of every one was contemplated, at the very latest date, by May 1, 1942. Two traps were fully completed and nets were set and in use on April 7th. Others would have followed in rapid succession.

For guard protection, supervision and operation I had placed one officer, four enlisted men, and a varying number of civilians in close proximity to each trap. With necessary transportation on hand, they were fully prepared to insure scheduled deliveries. It was planned and confidently expected that delivery of fresh fish to Q.M. Dumps and to field kitchens would fully replace, and gradually exceed the total amount of fresh carabao meat which had been regularly delivered, without interruption, throughout the Bataan campaign. Including approximately 400 mules and 200 carabao still available, the fresh meat supply was sufficient for at least three weeks longer, by which time the anticipated quantities of fish were expected to be available to fully replace that supply, volume for volume.

Other appropriate methods of fishing were also in the process of rapid expansion. Deep sea fishing by means of basket traps is the usual method employed in the Philip-

pines in waters too deep for the large corral traps above referred to. We had already placed large orders with native basket makers and many were already on hand. This method of fishing was being rapidly organized and expanded, with the help and cooperation of native fishermen. The possibilities of this type of fishing, given reasonable time, seemed unlimited and it was confidently expected that the total supply of fish would soon exceed any possible demand from Bataan and Corregidor combined .

Still another group was already organized and was receiving daily instruction in the use of high explosives as an additional means of augmenting our supply of fish. Enlisted ordnance personnel was loaned to me for this purpose. Satisfactory progress was being made. Highly interesting developments were anticipated. It was hoped that this method would prove useful in this emergency.

Other methods of fishing were receiving due consideration but time had not yet permitted the further organization of enthusiastic anglers. My own experiences in deep sea fishing suggested several other promising methods, but since time and volume were of primary importance, our initial efforts were necessarily confined to those methods which promised the greatest immediate results, and with which the native fishermen were already familiar.

The fall of Bataan brought all of our efforts to a sudden and untimely end * * *.

On 9 April 1942, the American-Filipino forces on Bataan surrendered, and less than a month later the Corregidor fortress fell into the hands of the Japanese. Subsequently, during their imprisonment as prisoners of war, the veterinary officers acted to the benefit of their fellow men as medical assistants in hospitals, camp sanitary officers, and operators of small camp animal farms. Five veterinary officers, of the twelve originally in the Philippine Department, were killed in action or died during their internment.

Development of Veterinary Service in Southwest Pacific Area

On 9 April 1942, the only major Allied area not yet captured by the Japanese advances into the southwest POA was Australia, but, even so, Darwin, in northern Australia, had undergone its first aerial bombing in February 1942. During March 1942, General MacArthur reached Australia from the Philippines to take command of U.S. and the Allied Australian and Dutch military forces which now were grouped under the newly created General Headquarters, SWPA. Then, on 18 April 1942, the earlier USAFFE (in the Philippines) was set aside on an inactive status, only to be restored again on 23 February 1943 and continued until mid-1945 as the U.S. military theater command in the otherwise Allied, joint Army-Navy theater called SWPA. Before this time, or since December 1941, a new Army theater organization was developing in Australia. For example, an Army troop convoy en route to the Philippines was constituted as Task Force, South Pacific, and diverted to new destination at Brisbane, Australia. On arrival there (in late December 1941), this task force became U.S. Forces in Australia, or USAFIA, as it was called after 5 January 1942. Another task force (Task Force 6814Z), with five veterinary officers and six enlisted personnel, came into Australia on 27 February 1942, but four of these veterinary officers were reordered to Task Force 6814, which landed on New

Caledonia, 12 March 1942; subsequently, three of the latter were returned to Australia, and the senior ranking officer of the group was designated on 4 April 1942 as veterinarian and assistant to the surgeon of USAFIA, with headquarters then at Melbourne, having moved from its original location in Brisbane. In the same month (April 1942), a veterinary officer arrived with the 135th Medical Regiment; during the next 2 months, others came into Australia from the Zone of Interior, including those with the 2d Port Headquarters, 41st and 32d Infantry Divisions, and 3d Medical Laboratory. During this period, Army forces were scattered among seven base section commands on the Australian Continent and the U.S. Advance Base on New Guinea.

After April 1942, the central administrative office for the Army Veterinary Service in the SWPA fluctuated between the Army theater headquarters and Headquarters, USASOS, SWPA; of course, the latter headquarters assignment was the best possible location for the nominal chief or theater veterinarian during the period, July 1942 to February 1943, because then, as will be noted, there was really no U.S. Army theater command. The headquarters locations for the theater's central veterinary office [5] were, briefly, as follows: Headquarters, USAFIA, April to July 1942; Headquarters, USASOS, SWPA, July 1942 to February 1943; Headquarters, USAFIA, February to September 1943; and again, the supply services headquarters, from September 1943 until its reorganization (as USAFWESPAC) in June 1945 (*6*, *7*).

Effective on 20 July 1942, the American theater command in Australia was redesignated USASOS, SWPA, and, concurrently, the nominal chief of the theater's veterinary service organization, along with the medical and nearly all other special staff sections, were transferred to the new supply services headquarters at Melbourne, this headquarters moving about 2 months later to Sydney. There was then no American theater command to coordinate the U.S. Army air, ground, and service forces; all of this was being done at the level of the Allied headquarters which at no time added a veterinary officer to its staff. On 26 February 1943, USAFFE was again activated, with headquarters at Brisbane, to administer all American air, ground, and service troops in the SWPA; at the same time, a senior Veterinary Corps officer who had just recently arrived in the theater was assigned to Headquarters, USAFFE, to act as veterinary consultant in the chief surgeon's office. This did not change the status of the existing services of supply headquarters veterinarian except to subordinate him under the supervision of the new theater veterinarian and to better coordinate theaterwide the developing veterinary service organizations in the Sixth U.S. Army and in the Fifth Air Force, the latter having been activated in September

[5] Theater veterinarians or those acting in that capacity included Lt. Col. Charles M. Cowherd, VC (4 April 1942 to 15 February 1943), Col. Louis G. Weisman, VC (16 February 1943 to 22 January 1945), and Col. Stanley C. Smock, VC (22 January through 7 June 1945).

1942. As of early January 1943, the veterinary service organization in the SWPA included 25 officers and 9 enlisted personnel, at station as follows:

Chief Surgeon's Office, USASOS, SWPA

Medical Section, Base Section 1 (including 1 officer at Birdum)
Medical Section, Base Section 2 (including officers at Augusta, Charters Towers, Cairns, Portland Roads, and at a developing remount depot installation):
3d Medical Laboratory
Troop A, 251st Quartermaster Remount Squadron
Medical Section, Base Section 3 (including 1 officer at Rockhampton):
Surgeon's Office, 32d Infantry Division
Surgeon's Office, 41st Infantry Division
Medical Section, Base Section 4
Medical Section, Base Section 7:
Remount Purchasing Board
Medical Section, U.S. Advance Base (New Guinea) (including 1 officer at Falls River)
Medical Section, Fifth Air Force
3d Medical Supply Depot

Actually, this number was far below existing requirements and anticipated needs, particularly in view of planning for procuring animals and mounting several ground combat and service units; of course, the recent occurrences of botulism poisoning in an engineer unit (that was attributed to Australian canned food) and of an epidemic milkborne typhoid fever among a large city population in Australia only confirmed the reality of shortages in numbers of veterinary personnel. During 1943, planning for the veterinary service organization in the theater was rapidly advanced. By the end of the year, the Army Veterinary Service had 100 officers, 37 enlisted personnel, and 29 civilian employees. Unfortunately, the situation regarding the status of the theater veterinarian that had been gained in February 1943 lasted only 7 months. Thus, during September 1943, Headquarters, USAFFE, freed itself of most special staff divisions, including the chief surgeon's office and chief veterinarian, who were then returned to primary assignment with Headquarters, USASOS, SWPA, which had recently moved from Sydney to Brisbane. From that time to mid-1945, there was no change in the status of the nominal chief veterinarian for the Army Veterinary Service in the SWPA. After the fall of 1944, this headquarters moved from Brisbane to Hollandia, New Guinea, and then, during the early months of 1945, to the Philippine Islands, first at Tacloban and, after April 1945, at Manila. On 7 June 1945, Headquarters, Services of Supply, SWPA, was discontinued, and, concurrently, Headquarters, USAFWESPAC, was established.

During 1943 and the first half of 1944, USAFFE was made up of the Services of Supply organization, with its two base section subcommands which controlled the several bases on the Australian Continent, and, in New Guinea, of the Sixth U.S. Army and the Fifth Air Force. Each of these three had its own veterinary service organization, but there was no technical coordination of them at the level either of the Army theater headquarters or of Allied Headquarters, SWPA, which was retaining operational control separately over the Army air, ground, and service forces. In the fall of 1944, Headquarters, Far East Air Forces, was created to co-

ordinate the Fifth Air Force with the Thirteenth Air Force which now was being transferred from the SPA, and Headquarters, Eighth U.S. Army, together with additional troops received from the Zone of Interior. Also, certain air, ground, and service forces units, formerly with USAFICPA and USAFISPA, were added, as was part of the latter's island bases in the North Solomons. By the end of 1944, the Army Veterinary Service in the SWPA included 115 to 118 officers, approximately 300 enlisted personnel, and 12 or more civilian employees. Obviously, this theater veterinary strength was relatively large in comparison to troop strength, but, as in other Asiatic-Pacific theaters, the demands for them could not be measured in terms of troop strength alone because—

> * * * less personnel is needed for 50,000 troops when stationed in one area than for 30,000 troops who are dispersed in many locations.
>
> The availability of cooperating agencies such as local boards of health, meat inspectors, field dairy supervisors, sanitary inspectors, and city laboratories should be taken into consideration whenever veterinary officers are to be allocated to a theater.
>
> The country where operations are likely to take place with reference to climatic conditions, availability of storage or refrigeration facilities, should be considered; also, whether [food] supplies are to be procured from the United States or in a country like Australia where closer scrutiny by veterinary inspecting personnel at the sources of production was required.

As of mid-January 1945, the veterinary service organization in the SWPA was distributed as follows:

Chief Surgeon's Office, USASOS, SWPA

Surgeon's Office, Sixth U.S. Army
Surgeon's Office, Eighth U.S. Army
Medical Section, Headquarters, Far East Air Forces
Air Surgeon's Office, Fifth Air Force
Medical Section, Headquarters, Base Section (Australia)
Medical Section, Headquarters, Intermediate Section (New Guinea)
Service Command, U.S. Army Forces, Northern Solomons
Medical Section, Headquarters, XI Corps
Service Command, XIV Corps
Veterinary Branch, Procurement Division, including two branch procurement offices
Medical Sections of Base Headquarters 2, A, B, E, F, G, H, K, M; U.S. Forces, APO 320 (of Eighth U.S. Army); and Army Garrison Forces, APO 248 (of Sixth U.S. Army)
Medical Sections of Divisions: 1st Cavalry, 6th Infantry, 11th Airborne, 24th Infantry, and 32d Infantry
Veterinary Sections of Cavalry Regiments: 7th and 112th
16th Veterinary Evacuation Hospital
Veterinary Food Inspection Detachments: 95th through 112th, inclusive. (Of these, the 100th was attached to the 31st Infantry Division, and the 105th was attached to the Fifth Air Force.)
Veterinary Detachments, Aviation: 3d and 4th
Headquarters, Hospital Centers: 27th and 28th
19th Medical General Laboratory
Medical Laboratories: 3d, 5th, 8th, 26th, and 27th
3d Medical Composite Detachment, Headquarters Concentration Center
Veterinary Detachment, 627th Quartermaster Refrigeration Company
Veterinary Detachment, 281st Signal Pigeon Company
Medical Section, Headquarters, 2d Port (Transportation Corps)
Medical Supply Service, Base K
1st Training Center
59th Service Group, Fifth Air Force

With the emergence of Headquarters, USAFPAC, to consolidate all U.S. air, ground, and service units in the Pacific under a single command, the existing command structure in the SWPA was greatly changed. On 7 June 1945, Headquarters, USASOS, was discontinued, and its place was taken by Headquarters, USAFWESPAC, with location at Manila, and, on 1 July 1945, Headquarters, USAFPOA, came under jurisdiction of the consolidated command as the newly organized Headquarters, USAFMIDPAC, located at Fort Shafter. The latter, on 1 August 1945, lost operational control over the Ryukyus campaign to the senior command headquarters so that the Tenth U.S. Army and XXIV Corps became separate echelons alongside the Sixth and Eighth U.S. Armies in the new Pacific theater. Summarizing, by September 1945, Headquarters, USAFPAC, included the following major commands, each with its own veterinary service organization (but uncoordinated theaterwise):

USAFMIDPAC
USAFWESPAC
Sixth U.S. Army
Eighth U.S. Army
Tenth U.S. Army
XXIV Corps
Far East Air Forces

In a summary of veterinary activities in the SWPA, it may be observed that the Army horse and mule strength reached a peak of 4,945 in July 1943. The average strength during 1943 and 1944 was 2,794. During the period there were 4,325 admissions and 404 animals died or were destroyed. During 1943 and 1944, also, more than 3⅓ billion pounds of subsistence (including non-animal-origin foods) were inspected; approximately 23 million pounds were recommended for rejection from procurement or issue to the U.S. forces.

U.S. Army Services of Supply, Southwest Pacific Area

The Services of Supply organization, successor in July 1942 to USAFIA, provided logistic support to the American air and ground forces deployed in the otherwise joint Army-Navy and Allied theater referred to as SWPA. At various times during its existence, it comprised the only semblance of a U.S. Army oversea theater command in the SWPA, but, generally, there was little direct technical supervision by it over the air and ground forces from a theater level. Headquarters, USASOS, SWPA, contained most of the special staff sections typical of a theater headquarters organization, including the nominal chief veterinarian (except for the period from February to September 1943). On 7 June 1945, this service forces organization was replaced by the newly created USAFWESPAC, which continued to administer the bases that had been set up, since the first year of the war, in Australia, on New Guinea, and in the Philippine Islands. Each of these

three areas had its own group of military bases and its own veterinary service organization.

Initially, there were seven numbered bases (originally designated base sections) in Australia and the U.S. Advance Base in New Guinea. As the Allied combat forces island hopped westward, the original seven bases were cut back, and Headquarters, USASOS, removed them from its direct supervision by establishing, on 4 May 1944, the Base Section, later renamed Australia Base Section, for maintaining administrative control over the bases in Australia. In the meantime, as the fighting for the Solomon Islands in the SPA and for New Guinea in the SWPA progressed, the U.S. Advance Base set up subbases throughout New Guinea and on the islands nearby—Base A at Milne Bay, Base B at Oro Bay, Base C on Goodenough Island, Base D at Port Moresby, Base E at Lae, Base F at Finschhafen, Base G at Hollandia, and Base H on Biak. The first of these (Base D) was established in the fall of 1942; the last was set up on Biak during August 1944. Gradually, these bases were grouped under the central administrative control of the newly created Intermediate Section, renamed later the New Guinea Base Section, which operated on the same organization level of USASOS as did Australia Base Section. With the return to the Philippines, additional service forces bases were established there, and these bases were soon grouped under the central administrative control of the USASOS's newly formed Luzon Base Section, later renamed Philippine Base Section.

In regard to veterinary affairs, these three base section subcommands of USASOS, SWPA, were comparable to the functional organization of Central, South, and Western Pacific Base Commands in the CPA (as of the spring of 1945). The Australia, New Guinea, and Philippine Base Sections each included assigned staff veterinarians, in the respective headquarters medical sections, who administered the veterinary activities among the various bases. The base veterinary service organizations on New Guinea and in the Philippines generally followed a standard plan which was developed in May 1944 but not until after the Army Veterinary Service had experienced major difficulties, compounded by shortages in numbers of trained food inspection personnel, with the veterinary service organizations of the original numbered bases in Australia. This new base plan provided for each to have one headquarters staff veterinarian, one port veterinarian, a (subsistence) depot veterinarian, one commissary veterinarian (and one enlisted man for each of the four officers), and one or more veterinary food inspection detachments at the rate of one detachment per every 25,000 troops up to 100,000 strength, another per every 50,000 troops over 100,000 but not more than 200,000 strength, and an additional detachment per every 100,000 troops over 200,000 strength. There were no changes in this plan so that its provisions seemed to have been adequate in satisfying the veteri-

nary requirements, particularly for food inspection services on the Pacific island bases, during the last year of the war.

However, the plan's reference to veterinary food inspection detachments was vague because at the time there were in the theater 16 separate veterinary animal service-type detachments, then acting as food inspection organizations (except for a few being utilized in medical depot operations). These had been brought into the SWPA in connection with the theater's 1942–43 plan for deploying large numbers of pack-animal transported ground service and combat units. Nine of them (Veterinary Sections H, I, K, L, M, N, O, P, and Q), each with one officer and seven enlisted personnel, were organized as the pertinent sections of a standard quartermaster remount troop, and the other seven (Veterinary Sections D, E, F, G, R, S, and Z), each with two officers and nine enlisted personnel, were patterned after the organization of the veterinary section of the field artillery 75-mm. howitzer battalion (horse). Despite this, after conversion training of the personnel from animal service to veterinary food inspection service within the theater, these detachments, beginning in the spring of 1943, were assigned food inspection duties at installations in Australia and New Guinea and on subsistence procurement inspections. Then, on 1 October 1944, the 16 detachments were inactivated, and their personnel were reassigned in the organization of 18 newly activated veterinary food inspection detachments (table 22).

TABLE 22.—*Newly activated veterinary food inspection detachments, SWPA, 1 October 1944*

Veterinary Food Inspection Detachment	Former Veterinary Section	Place of activation	
		Base	Location
95th	D	B	Oro Bay.
96th	E	G	Hollandia.
97th	F	A	Milne Bay.
98th	G	A	Do.
99th	H	G	Hollandia.
100th	I	3	Brisbane.
101st	K	H	Biak.
102d	L	F	Finschhafen.
103d	M	H	Biak.
104th	N	B	Oro Bay.
105th	O	----------	Fifth U.S. Air Force.
106th	P	F	Finschhafen.
107th	Q	3	Brisbane.
108th	R	2	Townsville.
109th	S	F	Finschhafen.
110th	Z	E	Lae.
111th	----------	3	Brisbane.
112th	----------	7	Sydney.

Two of these detachments, the 105th and the 101st, were designated for organization and use by the Fifth Air Force, while the others were retained as service forces units and only temporarily attached to the field armies or army corps in connection with their movement into the Philippine Islands. It may be observed, however, that another such detachment in the theater was "OO" Veterinary Detachment (Food Inspection), later reorganized and renamed 743d Veterinary Food Inspection Detachment, which set up station on Leyte on 21 October 1944; this unit originally had come into the CPA from the Zone of Interior, during June 1944, and then was attached to XXIV Corps which participated in the original assault landings in the Philippine Islands. Following V–E Day, a number of detachments were named for redeployment from the European and Mediterranean theaters, but only two—the 77th and the 166th Veterinary Food Inspection Detachments—actually came into the Philippine bases before the Japanese surrendered.

At the Services of Supply level of SWPA, the Army Veterinary Service, from May to June 1942, provided professional services and technical assistance in the procurement of 2,515 horses for shipment to USAFISPA; in the procurement, processing, and distribution of approximately 3,500 horses in Australia; and in the care of 1,521 mules which were received on New Guinea from the United States. The procurement program for the 3,500 horses was undertaken in Australia during the fall of 1942 after the War Department had granted authorization for the development of several field artillery pack battalions and quartermaster pack troops. It was then believed that animals alone would have to be deployed to move regimental combat teams against the Japanese where there were steaming jungles, impassable swamps, and kunai grasses many feet tall that made motor transport impossible. Animals were not deployed, and a great quantity of the military supplies were moved, from the landing beaches to the combat teams, by natives employed by the Army in New Guinea and in the early Philippine operations. In the interim or by February 1943, however, animal requirements were set at 10,800 mules and 7,500 horses. Of course, the horses were to be obtained from Australian sources, and the mules, unavailable in that country, were to be obtained from the Zone of Interior. During the next month or two, this schedule was abruptly changed when Australian Government representatives (particularly, the Director-General of Health) refused the entry of the first incoming shipment of Army mules, and the Army redirected their disembarkation on New Guinea. This was far removed from U.S. military training and staging areas then in Australia. The Australian action against the mule importations was caused by the belief that these U.S. Army animals would introduce glanders and equine encephalomyelitis disease from the North American Continent into virgin Australia and was comparable to the action that was taken later against the importation of foods of U.S. origin to supply American troops. Conversely, much more could have been expected of the controls exerted by

the same Australian officials on the war materiel which was exported from Australia for the Army.

At about this time, there was also a major change in the theater's estimate on the urgency of pack-animal transported service and ground combat units, so that in April 1943, the horse procurement program in Australia was terminated (except to supply a few replacement animals to the units already mounted). The last shipments of mules, on requisition from the United States, arrived during July 1943. During this period, Troop A of 251st Quartermaster Remount Squadron, complete with its own veterinary section, was activated within the theater (in November 1942) to set up a remount depot at Townsville, Australia, and then in July 1943 to inaugurate its Forward Echelon Remount Depot at Port Moresby, in New Guinea. The remount installation at Townsville issued horses of Australian origin to the 61st, 62d, 63d, and 68th Quartermaster Pack Troops and the 167th Field Artillery Pack Battalion—all being elements of I Corps, Sixth U.S. Army. Before the end of 1943, the units were dismounted, and their animals were turned in to the remount depot which maintained them on a caretaking, or ranchlike, basis. Veterinary service with these animals in Australia came to a halt when the Australian Army, on request, took over the control of the animals and remount materiel in the spring of 1941. Later, in August 1944 and continuing through February 1945, approximately 2,300 of the horses were transshipped to the China-Burma-India theater, but the animals did not revert to veterinary supervision until after they were loaded on the animal transports.

The advance depot facility of Troop A, 251st Quartermaster Remount Squadron, was established at Port Moresby during July 1943, but, by this time, approximately 1,500 mules had been brought into that area and distributed between the 98th Field Artillery Pack Battalion (arriving in February 1943) and the 16th Quartermaster Squadron (of the 1st Cavalry Division, arriving in July 1943). Along with the general dismounting of ground forces units in Australia, these two units on New Guinea turned in their animals to Forward Echelon Remount Depot during the winter of 1943–44; before the end of November 1944, the depot processed these mules (1,340 in number) for transshipment to the China-Burma-India theater and then ceased operations. The 16th Veterinary Evacuation Hospital, originally arriving in New Guinea in February 1943 and assigned to the Sixth U.S. Army, provided the required veterinary animal services to the depot and, shortly after the depot closed, departed for the Philippine Islands to augment the veterinary food inspection services there.

In the SWPA, the Army Veterinary Service had considerably more to do with the food supply than it had to do with the military horses and mules. This was particularly true in Australia where the local food industries furnished the U.S. armed services in that area with the major share of their subsistence requirements; also, considerable quantities of meat and dairy



U.S. ARMY PHOTO

FIGURE 27.—The Army Veterinary Service cooperating with the Australian agricultural inspection agencies in supervising the sanitary quality production of cured and smoked hams prepared for the Armed Forces.

products were transshipped to the Army and Navy in the SPA. Throughout the greater part of 1942, the troops in Australia were rationed by the Australian Army, though certain items, needed to supplement the Australian ration, were obtained by local Army procurement. Also, small stockpiles of subsistence were built up from excess ships stores and from distress cargoes on ships that had been diverted to Australia from their scheduled sailing routes on account of Japanese naval activity. At first, there were an insufficient number of veterinary personnel available to inspect this food supply, and some doubt existed at theater headquarters level as to the status of Army veterinary officers even to conduct inspections on the Australian Army-supplied foods (fig. 27). In other words, in the beginning this situation here was comparable to that developing and continuing for the greater part of the early war period in New Zealand by the Joint Army-Navy Purchasing Board. However, by mid-1942, veterinary officers in many base sections of Australia, pursuant to local command authority and supported in their actions by respective surgeons, were convinced of the need for, and were, inspecting the meat and dairy supply to troops in their areas. Subsequently, in November 1942, the Quartermaster Corps was authorized to start the procurement of 200,000 rations of nonperishable subsistence for

the Army and in February 1943 established a depot organization to procure, store, and distribute these rations, thus replacing the existing Australian Army supply procedure. Concurrently, the lethargic attitude taken by Headquarters, USASOS, SWPA, toward veterinary procurement inspection in Australia was dropped, and adequate veterinary meat and dairy hygiene service was soon developed. There is no question that the recent outbreak of botulism (with 9 fatal cases) in a U.S. engineer regiment, attributed to uninspected canned beets of Australian origin, and an outbreak of 500 cases of milkborne typhoid fever (with 28 deaths) in the civilian population of an Australian town, mentioned previously, both emphasized the need for the Army to safeguard its town troop health and to recognize this on a theater-wide command level. In fact, what might have been a Spanish-American War type of Army embalmed meat scandal in the SWPA was averted by the theater's requisitioning for and authorizing the travel by airplane of several Veterinary Corps officers from the Zone of Interior.

During the period of Australian Army supply, the various local base section veterinarians conducted sanitary surveys of the Australian meat and dairy industries and of the national and local regulatory or governmental controls over them. There was no fluid milk market such as existed in the United States, and considerable efforts were expended and time elapsed before the Army Veterinary Service, in cooperation with local Australian officials, could develop such a market for most of the military bases. Probably the first modern fresh-milk shed to be developed in Australia was that set up and operated under veterinary supervision at Townsville. There, as in other Australian areas, problems existed, such as the improvement of dairy farms to operate at standards of sanitation higher than those characteristic of farms producing for butter and cheese industries, the development of tuberculin-tested and tuberculosis-free dairy herds, the inauguration of adequate milk transport routes from the milk-producing areas, and the requirement for proper milk pasteurization equipment (fig. 28). In various areas, the veterinary demands for such fluid milk markets were criticized. In one area, Army veterinary officers cooperated, on request, in a state program to tuberculin test 15,000 cattle which were included in the milkshed of a large city that also entered in the supply of milk to troops. In another area, the Army Veterinary Service was faced with Australian claims that the Army should pay indemnity costs for the conduct of a tuberculosis test-and-eradication program.

In regard to the fresh meat supplied by the Australian Army, the Army Veterinary Service alone initiated safeguards to protect the health of U.S. military personnel and the economic interests of the United States. At the beginning, sanitary inspections of establishments and ante mortem and post mortem inspections were conducted in a somewhat apologetic manner to civilian suppliers under Australian Army contract, informally, and with little or no objections against such Veterinary Corps inspections being



FIGURE 28.—Pasteurization of fresh fluid milk supply as required by the U.S. Army Veterinary Service in Australia.

raised by the concerned Australian Army supply or liaison officers (*7*). During June 1942, a base section veterinary officer forwarded recommendations through medical and command channels of communication to Headquarters, USAFIA, for restricting the Australian Army sources of fresh meat to commercial establishments which were operating under supervision of the Australian Department of Commerce and for augmenting the theater's Army veterinary food inspection service with more personnel to be requisitioned from the Zone of Interior. The headquarters adjutant general soon advised that this was being accomplished, adding that a memorandum had been promulgated on the supply only of meat to the Army from such inspected plants. The Australian Army supply officers, however, were not subjected to such U.S. military regulation, although the memorandum did have some application in regard to local purchases of meat that were being made by various U.S. Army commands or units.

During August 1942, the same veterinary officer initiated another recommendation (which was endorsed to the successor Headquarters, USASOS,

SWPA) for action to amend the Australian contracts (or tenders) to include a requirement for the inspection and identification by the Veterinary Corps of all foods of animal origin that were being procured for U.S. troops. The basis for this recommendation was that the two abattoirs supplying fresh meat locally were "* * * decidedly not meeting sanitary inspections of our Army, and not unlike the slaughter houses seen years ago in isolated rural communities in the U.S." and were operating under the part-time supervision of a local state, nonprofessionally qualified Australian inspector. The local base commander had authorized that informal arrangements be made between the base veterinarian and the Australian contractor for the conduct of Veterinary Corps ante mortem and post mortem inspections, but Headquarters, USASOS, SWPA, seemed deliberately to have failed to recognize this problem as one existing at all military bases and thus took no positive action with regard to the recommendation that was made. As late as 20 October 1942, headquarters assistant chief of staff, G–4 (Supply), acknowledged this and admitted that from what he "* * * saw being butchered in the Darwin area, it [the meat] was all pretty poor; but believe that most of it was better than horse meat"—further adding that Army veterinary food inspection activities were a problem of local command responsibility, that these inspections would complicate the procedure of Australian Army subsistence supply, and that "* * * we are bound to have many annoyances and conflict" which must be excused in the existing supply procedure. Military logistics now had reached a new low point wherewith U.S. Army medical considerations for protecting troop health and effecting easily attained economies were completely subordinated to supply affairs and niceties of inter-Allied cooperation.

Eventually, the responsibilities for procuring the Army's and Navy's subsistence were transferred from the Australian Army and were largely centralized in a theater quartermaster organization, complete with its own veterinary service. This was the Quartermaster Subsistence Depot, later evolving into the Procurement Division, USASOS, SWPA, with headquarters at Sydney, Australia. It first undertook the procurement, storage, and distribution of nonperishable (or canned) subsistence in the early months of 1943 and then gradually assumed the buying of perishable foods for the Army and Navy. Meat and dairy products which could not be obtained within the theater were requisitioned from the Zone of Interior. In the canned meat procurement operations, the Army Veterinary Service reported on many changes that were necessarily made in the Australian meat industry which in 1942 had only a few canning plants and produced little over 3 million pounds of canned products for the Army. In 1943 and 1944, veterinary inspections of Army procurements totaled 49,500,000 pounds and 79,632,843 pounds, respectively, of canned meats of Australian manufacture. In mid-1942, Army veterinary officers successfully advised also on the development of frozen boneless beef production in Australia as a means of



FIGURE 29.—Trier inspection of cured and smoked ham, Melbourne, Australia.

conserving Australian refrigeration space, Allied shipping space, manpower in military messhalls, and meat scraps and fats that could be used elsewhere.

Probably, the most vexatious inspection problem concerned cured and smoked products such as bacon and ham, because the U.S. procurement specifications purposefully were suspended by the quartermaster agency to stimulate the production of these items (fig. 29). Under this situation, the Army Veterinary Service could only stimulate the cooperative interests in contractors to produce cured and smoked products which could be distributed to the island bases without deterioration and spoilage occurring during their transshipment from Australia. Actually, there were spoilages and losses of large quantities of Australian-produced bacon and ham, but the effect of the veterinary inspection (and educational) program began to show in better products within a year or more. However, the efforts on the 1944 output were almost nullified when the skipper fly (*Piophilia casei*) infested many commercial plants. The butter and cheese production in Australia, as would be expected, presented no major problems in connection with veterinary procurement inspections. There was no regulatory control by the Australians over their production of poultry except that which was set up and maintained

by the Army Veterinary Service after the fall of 1942. It may be noted that the theater's quartermaster supply of the first holiday turkey to Army troops (on Thanksgiving Day, 1942) was little if any better than was experienced several thousand miles away in the China-Burma-India theater at the same time; in Australia, the veterinary inspections were limited to that conducted after its arrival at the military bases, strictly to determine if the turkey was fit to eat.

The quantities of subsistence lost on account of deterioration and spoilage were great. There were a large number of factors contributing to these losses, most of them outside of the jurisdiction of veterinary food surveillance inspection within the theater. Under the existing conditions where subsistence deteriorated insidiously, was rehandled many times, most frequently exposed for varying periods of time to tropical humidity and heat without protective covering, and was stockpiled on island bases and as reserves which soon became excess as the combat troops moved westward, there was little which could be accomplished to lessen the losses. The adverse conditions affecting subsistence supply in the SWPA were matched only by those influencing subsistence deterioration and spoilage in the SPA and in the China-Burma-India theater. By the end of the war, the principal veterinary effort on most island bases was directed at the immediate removal of spoiled foods from the issues being made to military units, and recommendations were made against the transshipment of deteriorated subsistence which would spoil before arrival at another island base.

Australian base sections.—On the Australian Continent, Army Service Forces personnel and activities generally were divided between seven regional administrative areas, called base sections or bases (map 3). Between April and May 1942, the headquarters medical officers in Base Sections 2, 3, 5, and 7 each were assigned staff veterinarians. Base Section 6, comprising western Australia, became largely a U.S. Navy base of operations, and it was not until February 1944 that, on request, a Veterinary Corps officer was assigned there (fig. 30). In fact, Base Section 6 together with Base Section 5 had so few Army personnel that both were discontinued by the end of 1942, and, instead, U.S. representatives were named to the Adelaide and the Perth areas. A new, or the second, Base Section 5 with headquarters at Cairns was established in September 1943 when operations in Base Section 2, incident to the movement of materiel from northeastern Australia into the New Guinea Campaign, became so large as to require the division of the geographical area immediately surrounding Cairns from Base Section 2; however, in the early months of 1944, this base section became Base Area Command Two, subordinate to Base Section 2, and then closed out on 31 May 1944.

By the winter of 1942–43, there were serious shortages in numbers of veterinary personnel available for assignment to the various base subsections, but, during the succeeding months, as personnel became available, a second



MAP 3.—Base sections and bases in Australia (as of June 1942) and New Guinea bases (as of August 1944).

problem evolved. The personnel space authorizations for base overhead organizations were found to be numerically inadequate. Actually, most bases were complex organizations, including, as they did, a service command, a port command, and an area command. Although only two veterinary officers (and



FIGURE 30.—In western Australia, U.S. Navy personnel conducted origin inspections, under Veterinary Corps supervision, of sausages and other foods procured from the Army Service Forces.

no enlisted personnel) were prescribed in the tables for each base section, in April 1943, Base Sections 2, 3, and 4 actually had seven, seven, and three veterinary officers assigned, respectively. With respect to this situation, on 6 April 1943, Headquarters, USAFFE (G–1, Personnel), was advised by the theater surgeon that the Services of Supply base section organization should be revised upward to provide 2 officer and 10 enlisted spaces for Base Section 1, 7 officer and 20 enlisted spaces for Base Sections 2 and 3 and Advance (New Guinea) Base, and 3 officer and 10 enlisted spaces for Base Sections 4 and 7. During the fall of 1943, the veterinary food inspection activities in each of the several base section subcommands were augmented by the attachment of one or more veterinary detachments which had become excess to the requirements for service with animals in remount depots and mounted units.

As the combat area moved through New Guinea, the services of supply activities in Australia generally became of lesser importance. In mid-1944, Headquarters, USASOS, SWPA, renamed and reorganized the original base sections as Bases 1, 2, 3, 4, and 7, subordinating these to the jurisdiction of the newly established Headquarters, Base Section. Concurrently, Base Section 4 or the Melbourne area was subordinated as a subbase to Base 7, and, on 17 July

1944. Base 1 or the Darwin area was transferred to the jurisdiction of the theater air forces. On 12 December 1944, Base 3 or the Brisbane area was absorbed into Headquarters, Australia Base Section, which continued to administer the service forces still remaining in Australia, but it was not until June 1945 that Bases 2 (at Townsville) and 7 (at Sydney) were closed.

New Guinea bases.—The services of supply organization on New Guinea started with the establishment in the fall of 1942 of U.S. Advance Base at Port Moresby. Before the end of that year, subbases were set up at Oro Bay and Milne Bay, and, during the spring of 1943, another was established on Goodenough Island which was occupied by the Sixth U.S. Army. Eventually, these several subbases, under jurisdiction of Headquarters, Advance Base, became Base A (at Milne Bay), Base B (at Oro Bay), Base C (on Goodenough Island), and Base D (at Port Moresby). As of 6 January 1943, one veterinary officer was assigned to the main advance base at Port Moresby and another at Fall River; in February, the 16th Veterinary Evacuation Hospital arrived in the area to support two mounted units and a remount depot facility that came into operation there. During the greater part of the year, the Milne Bay area was the major base for receiving, storing, and distributing subsistence to the combat forces on New Guinea; after the Buna-Gona campaign, Base B became equally active.

As the Allied forces pushed westward along the northern New Guinea coastline, the original Advance Base or Section staff was reorganized as Headquarters, Intermediate Section, USASOS (with location at Milne Bay and then moving several times after that) to coordinate services of supply activities at Bases A, B, and D. Concurrently, a new Advance Section (with headquarters at Lae and, after January 1944, at Finschhafen) was created to coordinate these activities at two newly formed bases: Base E (at Lae) and Base F (at Finschhafen). The new Advance Section was only temporary and, in March 1944, it was disbanded; the Lae and Finschhafen bases were then added to the jurisdiction of Headquarters, Intermediate Section. Actually, by March 1944, Base F had replaced the more easterly located bases as the major subsistence storage and distribution area in New Guinea. During this time, each New Guinea base was assigned its own veterinary personnel, and veterinary animal service organizations (later reorganized as food inspection detachments) were received from the bases in Australia and deployed at ration dumps. The first group of thirteen such detachments in New Guinea came into Base F during February, March, and April 1944, while others were sent into Base A. This veterinary food inspection organization at the base level was technically supervised by a Veterinary Corps staff officer assigned to the Medical Section, Headquarters, Intermediate Section.

Eventually, other bases were established at Hollandia in June 1944 and on Biak in August 1944, Base G and Base H, respectively. These, along with Bases A, B, C, D, E, and F, soon were subordinated under Headquarters, Intermediate Section. Units in New Guinea, other than the veterinary food

inspection detachments and those supporting mounted units and remount depot installations that had assigned veterinary personnel, at one time, included: At Milne Bay, 2d Medical Concentration Center (renamed in December 1944 as 31st Hospital Center) and 5th Medical Laboratory; at Oro Bay, 3d Medical Laboratory; at Finschhafen, 26th Medical Laboratory and 627th Quartermaster Refrigeration Company; at Hollandia, 3d Medical Composite Detachment (of Headquarters Concentration Center), 3d Medical Laboratory, 19th Medical General Laboratory, 27th Hospital Center, and 112th Cavalry Regiment (Dismounted); and on Biak Island, 8th Medical Laboratory and 28th Medical Center. Before the end of 1944, many of these veterinary personnel and units had already departed from, or were preparing to leave, the New Guinea bases for the Philippine Islands (table 23).

TABLE 23.—*Deployment of veterinary food inspection detachments, New Guinea bases, Southwest Pacific Area, 1943–45*

New Guinea Base	Veterinary Food Inspection Detachment	Arrival date	Departure date	Philippine Base assignment
A	97th	April 1944	October 1944	K.
	98th	May 1944	(1)	
B	104th	Late 1943	February 1945	X.
	95th	August 1944	July 1945	M.
D	99th	June 1944	(2)	
E	110th	May 1944	March-April 1945	K.
F	102d	March 1944	July 1945	Unknown.
	96th	April 1944	(2)	
	106th	do	February 1945	M.
	109th	do	October 1944	K.
G	96th	June 1944	July 1945	R.
	108th	do	June 1945	R.
	99th	September–October 1944.	December 1945	M.
H	103d	November 1944	do [3]	
	101st	October 1944	November 1944	K.
	98th	November 1944	July 1945	K.

[1] Assigned to Base H.
[2] Assigned to Base G.
[3] Inactivated.

Effective on 15 February 1945, Headquarters, Intermediate Section, became Headquarters, New Guinea Base Section, with location at Oro Bay, which continued to administer the seven bases in the area until its disbandment on 20 August 1945. Headquarters, New Guinea Base Section, lost its staff veterinarian (by transfer to the Philippines) in March 1945, and after that date, veterinary activities at the various bases were rapidly reduced. With the discontinuance of Headquarters, New Guinea Base Section, the

bases were subordinated directly under Headquarters, USAFWESPAC, which more or less closed them by the spring of 1946.

U.S. Army Forces, Northern Solomons.—Another command, comprising island bases in the vicinity of New Guinea that was never under jurisdiction of the theater's service forces organization, was U.S. Army Forces, Northern Solomons, with headquarters on Bougainville. This was created (under the operational responsibility of XIV Corps), on 7 November 1944, to consolidate the administration over the troops and the following areas formerly assigned to USAFISPA and transferred on 15 June 1944 to jurisdiction of SWPA: Bougainville, Emirau, Green Islands, New Georgia, and Treasury Islands. Each included a service command veterinarian, but shortly after 31 December 1944 when the service commands were renamed U.S. Army Forces commands, these veterinary personnel gradually departed as the island bases were rolled up (before June-July 1945). In January 1945, the Bougainville Service Command veterinarian was assigned as headquarters veterinarian, U.S. Army Forces, Northern Solomons, and, on 20 August 1945, that command was discontinued.

Philippine Island bases.—In the Philippine Islands which were retaken from the Japanese after the fall of 1944, the Army Veterinary Service with USASOS, SWPA, followed much the same pattern of base development used earlier in Australia and New Guinea. The original Philippine bases were developed by an Army Service Command organization which originally was attached to the Sixth U.S. Army (between July 1944 and February 1945). That organization, while staging at Hollandia, developed Headquarters, Base K, which set up station on Leyte, at Tacloban in October 1944, and Headquarters, Base M, which set up station on Luzon, first at San Fabian in January 1945 and then at San Fernando. Later, the Army Service Command created Headquarters, Base R, for operation on Luzon at Batangas (which was 60 miles south of Manila), and Headquarters, Base S, which was set up as a service forces organization on Cebu (map 4). In February 1945, the Army Service Command was released from Sixth U.S. Army to control of USASOS, and, as the newly named Luzon Base Section, it assumed operational control over Bases K, M, and X—the latter being located in Manila; in April 1945, Bases R and S were added and the Luzon Base Section was renamed Philippine Base Section. Throughout this organization, the base section headquarters or staff veterinarian coordinated the veterinary personnel and activities in the various subbases.

During June 1945, Headquarters, Philippine Base Section, was transferred as a major subcommand to USAFWESPAC, which had replaced the theater's service organization. Following V–J Day, on 6 October 1945, it was discontinued, and the Philippine bases (that is, K, M, X, R, and S) came under immediate jurisdiction of the recently formed Headquarters, USAFWESPAC. As of mid-1945, the Philippine Base Section Headquarters and its five bases each included one or two veterinary officers and and a total



Map 4.—Army bases in the Philippine Islands, 1945.

of 15 veterinary food inspection detachments. At this time also, the Sixth and Eighth U.S. Armies in the Philippine Islands had set up three divisional area commands to overcome the minor Japanese resistance in bypassed islands or wherever small groups of Japanese had fled to hide in caves. One such area was Morotai, taken over by the Eighth U.S. Army's 93d Division and included in Southern Islands Area Command; the 100th Veterinary Food Inspection Detachment arrived on Morotai during March 1945 and remained there until 26 December 1945. In August 1945, the Southern Islands Area Command was released from army control to Headquarters, USAFWESPAC.

Procurement Division.—An activity separate from that conducted at base level was that of the Veterinary Branch, Procurement Division, USASOS, SWPA, which operated in Australia (*8*, *9*). This procurement agency was established in mid-February 1943 originally as the Quartermaster Subsistence Depot, at Sydney, for the purpose of conducting food procurement in Australia for the Armed Forces. For a brief period of time, in the fall of 1943, the original depot organization was expanded into a general depot and later subordinated to Australian Base Section 7's service command, but, during January 1944, another reorganization saw the development finally of the Procurement Division. Later that year, when Headquarters, USASOS, moved into New Guinea and thence into the Philippines, this Procurement Division was transferred to administrative control of the Australia Base Section. When the original depot was established, Headquarters, USAFFE, obtained War Department authorization as regards the personnel who would be included, but only one veterinary officer was authorized on the basis of the theater's request. As soon as the subsistence depot organization was shown to be deficient in numbers of veterinary personnel, the aforementioned headquarters hurriedly made amends to provide for a depot veterinary service —this on suggestion of the chief surgeon's office which had questioned the manifest lack of coordination between theater headquarters planning staff (G–3) and Medical Department staff officers. Later, an overhead personnel allotment for 8 veterinary officers and 28 enlisted personnel was authorized, but even this number was inadequate as compared with the situation in mid-1944 when there were 18 officers and 52 enlisted personnel assigned or attached for duty.

These personnel were divided between the division's headquarters and the two of three subsistence subdepots or branch procurement offices, as they were called later, that were set up at Sydney, Brisbane, and Melbourne. In 1944, a veterinary officer was assigned to the Navy-administered Perth area to organize procurement inspections (utilizing Navy enlisted men) of subsistence originating in commercial establishments. Except in the Perth area, where procurement inspections were extended to all subsistence (including fruits and vegetables), the Army Veterinary Service with the Procurement Division was concerned with the inspection only of meat and dairy products.

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FIGURE 31.—Slaughtering and packing poultry in Australia, under U.S. Army Veterinary Corps supervision, for supply to the Armed Forces in the Southwest Pacific Area.

At the beginning, this agency limited its procurement to nonperishable (or canned) products, but later these operations were extended to the buying of perishables, and, in fact, a quartermaster market center system was created that paralleled perishable subsistence buying and distribution in the Zone of Interior. As of the end of 1944, veterinary food procurement inspections were being conducted in 154 commercial food establishments (including 10 plants under contract to supply foods of nonanimal origin); these were scattered throughout Australia in 44 cities and towns (figs. 31 and 32). All such establishments were surveyed and repeatedly inspected for their sanitary condition by Veterinary Corps officers. During 1944, veterinary inspections of products at time of delivery to, or acceptance by, the Army totaled 261,186,946 pounds of meat and dairy products and 61,053,237 pounds of non-animal-origin foods. Of these quantities, 3,470,686 pounds and 1,047,730 pounds, respectively, were recommended as unacceptable for procurement because of insanitary condition or unsoundness or because of improper grade or quality.

During 1945, as the combat area moved westward into the Philippines, the extent of subsistence procurement operations in Australia declined. How-



FIGURE 32.—U.S. Army Veterinary Corps inspection of the canning of dried egg powder produced for the Army under reverse lend-lease agreement in Australia.

ever, even during the 3-month period from April through June, the veterinary inspection workload at time of purchase totaled 38,796,692 pounds of meat and dairy products and 3,875,324 pounds of non-animal-origin foods, of which amount a total of 63,058 pounds were recommended for rejection. Of course, by this time, the identity of the Procurement Division was lost in the general organization of Headquarters, Australia Base Section (actually after February 1945), and such veterinary personnel as remained in Australia were being utilized not only to conduct subsistence procurement inspections, though this was their major activity, but also in a variety of other service forces activities. As of 30 June 1945, the Australia Base Section's service included 18 officers, 76 enlisted personnel, and 5 civilian employees.

Okinawa Base Command.—During the early period of the campaign in the Ryukyu Islands, services of supply activities there were transferred from jurisdiction of the Tenth U.S. Army and its combat forces to a joint Army-Navy administered Island Command headquarters. Also, two army garrison forces or logistic support commands accompanied the landing forces on Okinawa and Ie Shima Islands, each with its own staff veterinary officers and one or more veterinary food inspection detachments. About a month after the campaign was underway, the original Army Garrison Force, APO 331, that came into Okinawa was merged in the Island Command organization so that the garrison force veterinarian soon was elevated in his staff

status to the supervision of veterinary affairs on an island-wide basis. This included, in cooperation with the Tenth U.S. Army's veterinarian, maintenance of direct liaison with Marine Corps units in regard to the inspection of their food supply and with military government officers in connection with civil affairs. Effective on 1 August 1945, when jurisdiction over the Ryukyu area was transferred from USAFMIDPAC to USAFWESPAC, the Island Command was renamed Okinawa Base Command. At this date, the Army Veterinary Service in the Ryukyus included those few with Tenth U.S. Army units and the following:

Veterinarian, Surgeon's Office, Okinawa Base Command:
142d, 143d, 144th, 145th, and 149th Veterinary Food Inspection Detachments
69th and 70th Veterinary Food Inspection Detachments (arriving during August 1945 from the Mediterranean theater)
Veterinarian, Surgeon's Office, Army Garrison Force, Ie Shima:
147th Veterinary Food Inspection Detachment
Veterinarian, Surgeon's Office, Army Garrison Force, APO 458
Veterinary Section, 14th Medical Laboratory
Veterinary Section, 53d Medium Port

On 25–26 August 1945, the 142d, 143d, 144th, and 69th Veterinary Food Inspection Detachments were assigned to jurisdiction of Army Service Command-24 (under XXIV Corps) and departed during October for Korea; the 149th left on 21 October 1945 for Japan.

Sixth and Eighth U.S. Armies and Other Ground Forces

The veterinary service organization with ground forces units in the SWPA was never large and generally was outside the technical supervision of the nominal theater veterinarian. At the beginning of the war period, most of the infantry divisions coming into the area had their own division veterinarians, including the 41st and 32d Infantry Divisions which arrived in Australia during May 1942. After 1943, when the War Department had revised tables for the organization of infantry divisions and deleted the veterinary personnel space authorizations, only a few continued to retain their division veterinarians, and the following observation was made (7):

> The need for veterinary officers with Infantry Divisions of the Sixth Army as well as for other similar units was realized as operations proceeded in the tropical New Guinea jungles, and was the subject of informal conversation between the liaison officer of the Sixth Army at Headquarters, United States Army Services of Supply and the Veterinary Consultant. Much food could have been saved had such veterinary personnel been available. The following quoted notes made by the Veterinary Consultant on 8 May [1944] during an inspection at Finschhafen, N.G., are considered pertinent: "_____ Visited Dregget Ration Dump. Veterinary officers reported that when the 41st Division pulled out, they left 75 tons of loose rations. Some were poorly taken care of. Out of the 75 tons, 15 tons had to be condemned. The 32d Division and 1st Cavalry Division also left about 150 tons and the loss after inspection was 15 tons or 10%. All these supplies were badly weathered and apparently deteriorated while in possession of the 6th Army * * *."

Later in 1944 the Commanding General, Sixth Army, finally requested the inclusion of a Major, VC, and 2 enlisted men on the T/O for each Infantry Division of the Sixth Army. This request was disapproved by the War Department. The War Department indicated that such veterinary personnel as are needed for divisions in the Southwest Pacific Area can be secured from those allotted to the theater as a whole. Accordingly, a number of veterinary officers were assigned to duty with Infantry Divisions and Task Forces. This procedure had its drawbacks, inasmuch as these officers were taken from and charged to the meager overall allotment of grades to United States Army Services of Supply; also no recognition in the form of promotions could ever be expected by these officers while in that status.

In the spring of 1943, the 1st Cavalry Division complete with the organic veterinary detachments for Headquarters Troop, 1st and 2d Cavalry Brigades, 5th, 7th, 8th, and 12th Cavalry Regiments, and 82d and 99th Field Artillery Battalions, and with its veterinary troop, arrived from the Zone of Interior but without its animals. Only 20 horses were provided to the division (August through November 1943) while in Australia, and, during July 1943, the division's 16th Cavalry Quartermaster Squadron, accompanying a shipment of approximately 300 mules, disembarked on New Guinea. The latter unit, in November 1943, turned in its animals to the Advance Echelon Remount Depot installation at Port Moresby as the whole division was being reorganized preparatory to deployment as dismounted cavalry. In this reorganization, Veterinary Troop, 1st Medical Squadron, was redesignated 2d Collecting Troop, 1st Mountain Medical Squadron, and, generally, the divisional veterinary enlisted personnel were absorbed by other medical units of the division while the veterinary officers, though utilized for some period of time on a miscellany of duties within the division, were gradually transferred. The 1st Cavalry Division, though the largest, was not the only ground forces unit authorized to be mounted or to have animals for a short period of time. As was commented upon earlier, the 98th Field Artillery Pack Battalion arrived on New Guinea in February 1943 with 600 mules from the United States (and received another 600 mules in June of that year); in Australia, the 61st, 62d, 63d, and 68th Quartermaster Pack Troops and the 167th Field Artillery Pack Battalion were activated and organized locally and provided with horses purchased outright or obtained through lend-lease in Australia. These units, attached to I Corps, were included in the composition of the Sixth U.S. Army, whose mean animal strength, exclusive of 1st Cavalry Division, increased from 1,525.4 for the month of May 1943 to 2,427.8 animals for July 1943. Then, in the late months of that year, the pack horse units in Australia were dismounted or inactivated, and their animals were returned to the Services of Supply remount depot installation at Townsville. Before the end of March 1944, the 98th Field Artillery Pack Battalion on New Guinea was reorganized without its animals, which were turned in to the Port Moresby remount depot installation. Thus, with one minor exception, there was no ground forces unit with horses or mules in the SWPA after the spring of 1944.

The exceptional circumstance pertains to the 33d Infantry Division during the fight for Baguio in the spring of 1945. Because of the shortages here in numbers of natives available for employment as laborers and the mountainous terrain which made vehicular traffic useless, the division improvised an animal pack train from 60 or more animals, which were captured from the Japanese, to move ammunition, water, food, and other supplies to its frontline troops. A veterinary officer on duty with the XI Corps was detailed to care for these animals. During June and July 1945, this pack train was virtually disbanded when one-half of the animals died or were destroyed because of surra infection.

Throughout this period, Headquarters, Sixth U.S. Army, which had come into the SWPA in the spring of 1943, had a staff veterinarian assigned to the headquarters medical section. With the actions during the winter of 1943–44 that had led to the dismounting of pack troops and artillery battalions and preparations for deploying the cavalry division without animals, the army veterinarian centered his attention on the administration of food inspection services at field supply points.

During July 1944, Headquarters, Eighth U.S. Army, arrived from the Zone of Interior, but its senior staff veterinary officer was returned to the United States 5 months later, and the army surgeon made no effort to obtain a replacement officer. However, the junior veterinary officer with that headquarters was continued in his assignment in the capacity as acting army veterinarian. Generally, Eighth U.S. Army's requirements for veterinary services were provided by the Sixth U.S. Army and Services of Supply, but, lacking central supervision, these veterinary activities were conducted in only a passable manner.

A third field army veterinary service organization came into the SWPA in mid-1945 when the Tenth U.S. Army, just then terminating the Ryukyus campaign, was received by transfer from the CPA.

Fifth and Thirteenth Air Forces

The veterinary service organization with the air forces in the SWPA probably began in 1943 when a Veterinary Corps officer stationed in the Darwin area came under the jurisdiction of the Fifth Air Force. The headquarters staff and air service command for Fifth Air Force was organized in the fall of 1942; initially, both medical sections operated together at Brisbane. Later in that year, Advance Echelon, Fifth Air Force, became operational in New Guinea (at Port Moresby), and, by March 1943, it had a staff veterinarian as did the main headquarters in Australia. During the opening months of 1944, the Fifth Air Force's veterinary service was augmented by the assignment of Veterinary Section K, later reorganized as 101st Veterinary Food Inspection Detachment, for duty at airbases in the New Guinea area (such as at Dobodura, Finschhafen, Gusap, Saidor, Nadzab,

Wakde, and Biak). Later, the detachment moved into the Philippines, finally setting up station at Clark Field on Luzon in April 1945. During August 1944, a second such unit, Veterinary Section O, or 105th Veterinary Food Inspection Detachment as it was called after November, was set up under air forces control at Darwin.

In June 1944, the SWPA gained the Thirteenth Air Force by transfer from the SPA, and, concurrently, the two headquarters staffs of Fifth Air Force were reorganized—its advance echelon becoming the new Headquarters, Fifth Air Force, and the main staff group becoming the new Headquarters, USAFFE. Subsequently, two air forces type of veterinary food inspection detachments were activated in the theaters, the 3d Veterinary Detachment, Aviation (originally with three sections, and after August 1944 with five subsections), being organized on 11 May 1944, at Nadzab, New Guinea, for duty with the Fifth Air Force; and the 4th Veterinary Detachment, Aviation (including the basic detachment and two subsections, designated Sections I and II), being organized on Morotai Island on 15 October 1944, for duty with the Thirteenth Air Force. Both detachments operated by dispersion of the component elements to the numerous, widely scattered bases of their respective air forces and moved frequently to new locations. For example, the basic detachment or headquarters element of 3d Veterinary Detachment, Aviation, moved on 11 August 1944, to Biak Island; on 15 February 1945, to Luzon (Clark Field); on 10 July 1945, to Ie Shima Island; and then in early September 1945 to airbases in Japan, first at Atsugi and then on 17 October 1945, at Tachikawa. The 4th Veterinary Detachment, Aviation, also operating in split sections, moved its basic detachment into the Philippine Islands during August and September 1945 (replacing the 3d Veterinary Detachment at Clark Field); its Section I opened at Palawan in the spring of 1945, and Section II moved to station at Samar, both sections being disbanded at these places on 23 October and 30 September 1945, respectively. There was some coordination of the veterinary services of these two air forces at the level of Headquarters, Far East Air Forces, because in November 1944 at least one veterinary officer was released from Base D, USASOS, for assignment to that headquarters. In late 1945, the theater's air forces were augmented by the addition of the Seventh Air Force by transfer from the CPA, but the Seventh Air Force, with headquarters then located on Saipan, had no organically assigned veterinary personnel or detachments.

U.S. ARMY FORCES, PACIFIC

The establishment, on 3 April 1945, of USAFPAC marked the beginning consolidation of Army commands in the Pacific theater (less that of the Alaskan Department). Originally, it absorbed USAFFE, and on 7 June 1945, the latter's USASOS organization was replaced by the new USAFWESPAC, with headquarters at Manila. The USAFPOA was added on

1 July 1945, under the new name of USAFMIDPAC, with headquarters continuing at Fort Shafter. The Western and Middle Pacific commands each had staff veterinary officers in their respective headquarters medical sections. Headquarters, USAFPAC, however, did not have a staff veterinarian until after V–J Day when the veterinarian, Western Pacific command, was moved upward into the position of senior headquarters veterinarian. At the time of the Japanese surrender, the major commands of USAFPAC having staff or headquarters veterinarians included:

USAFMIDPAC
USAFWESPAC
Sixth and Eighth U.S. Armies of Occupation for Japan
Tenth U.S. Army (on Okinawa)
XXIV Corps or Occupation Force for Korea
Far East Air Forces (renamed Pacific Air Command, U.S. Army, in December 1945)

Also, there were those veterinary officers on duty or arriving for assignment and duty with General Headquarters, Supreme Commander for the Allied Powers, which established military government in Japan and Korea. In October 1945, Headquarters, USAFPAC, added veterinary personnel to its medical section, and, during February 1946, that section moved from Manila to new location in Tokyo, Japan.[6] As of the end of 1945, the Army Veterinary Service in the Pacific theater included 127 officers, but before the end of another year this number was only 43.

U.S. Army Forces, Middle Pacific

In the immediate postwar period, the Army command of Middle Pacific (or successor, after 1 June 1945, to USAFPOA) was rapidly reduced. On 1 November 1945, its Central Pacific Base Command was disbanded and the latter's headquarters medical section was merged with the surgeon's office of Headquarters, USAFMIDPAC, to form Headquarters, Oahu Medical Service. The Veterinary Section, Headquarters, Oahu Medical Service, comprised the Middle Pacific's central office for administering the veterinary service organization in the Hawaiian Islands and in the South and the Western Pacific Base Commands. As observed previously, the two base subcommands were also reduced. As of the end of 1945, the Army Veterinary Service with USAFMIDPAC included 21 Veterinary and 1 Medical Administrative Corps officers and approximately 100 enlisted personnel.

U.S. Army Forces, Western Pacific

During the immediate postwar period, the USAFWESPAC, the second and the larger of the two territorial subcommands of USAFPAC, administered the veterinary service organization which remained on the

[6] On 1 January 1947, USAFPAC became the Far East Command.

bases scattered from Australia through New Guinea and in the Philippines and Ryukyus. By the end of 1945, the Australia Base Section was only a skeletal organization. The New Guinea Base Section headquarters had been disbanded (in August) so that its Bases F (at Finschhafen), G (at Hollandia), and H (on Biak) were subordinated directly under the supervision of Headquarters, USAFWESPAC, as were the Philippines Bases K (at Tacloban), M (at San Fernando), and X (at Manila) whose immediate headquarters organization, the former Philippine Base Section, had been discontinued (in October 1945); also, there was the Okinawa Base Command. As of 31 December 1945, the Army Veterinary Service with USAFWESPAC comprised 39 officers and 83 enlisted personnel. The officers were assigned as follows:

Surgeon's Office, Headquarters, USAFWESPAC:
  19th Medical General Laboratory
Procurement Division and Branch Procurement Offices 1 and 2, Australia Base Section
Surgeon's Office, Base G (Hollandia, New Guinea)
Surgeon's Office, Base K (on Leyte Island):
  Port, Base K
  743d Veterinary Food Inspection Detachment
  99th Veterinary Food Inspection Detachment (Subbase S on Cebu Island)
  671st Medium Port (Subbase S on Cebu Island)
Surgeon's Office, Base M (San Fernando, Luzon Island):
  77th Veterinary Food Inspection Detachment
Surgeon's Office, Base X (Manila, Luzon Island):
  100th, 110th, and 166th Veterinary Food Inspection Detachments
  3088th and 3094th Quartermaster Refrigeration Companies
  Surgeon's Office, 2d Major Port
  Surgeon's Office, Subbase R (Batangas, Luzon Island)
  93d Infantry Division Area Command (on Morotai Island)
Surgeon's Office, Okinawa Base Command:
  145th Veterinary Food Inspection Detachment
  279th Signal Pigeon Combat Platoon
  146th Veterinary Food Inspection Detachment, Army Garrison Force, Ie Shima

Military Occupation Forces

With the surrender of Japan, USAFPAC moved its Sixth and Eighth U.S. Armies from the Philippine Islands into the Japanese home islands and its XXIV Corps (now separated from Tenth U.S. Army control) from the Ryukyus into Korea. The Sixth U.S. Army with its Army Service Command-O became the military occupation force for southern Honshu and Kyushu, and the Eighth U.S. Army with Army Service Command-C occupied northern Honshu and Hokkaido—the first with headquarters at Kyoto, and the second with headquarters at Yokohama. The two army service commands comprised the basic veterinary service organization in regard to the occupying military forces. Other veterinary officers were assigned to military government teams and to General Headquarters, Supreme Commander

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for the Allied Powers, who were concerned with Japanese civilian affairs. During the early months of 1946, as the Eighth U.S. Army assumed the occupational role for all of Japan, Army Service Command-C absorbed Army Service Command-O and administered the various military bases that were developed, such as at Kobe, Kure, Nagoya, Fukuoka, and Yokohama.

Headquarters, XXIV Corps, and Army Service Command-24, each with a staff veterinarian, moved into the southern part of Korea (below the 38th North parallel of latitude) in September 1945. During the first few months, the corps veterinarian surveyed the local food and animal industries and cooperated in the conduct of military government operations over Korean civil affairs. However, before the end of the year, the latter activities were assumed by the newly formed U.S. Army Military Government in Korea, to which veterinary personnel were assigned. Headquarters, XXIV Corps, later referred to as Headquarters, U.S. Army Forces in Korea, set up station at Seoul, while Army Service Command-24, renamed Korea Base Command (in April 1946), set up its headquarters at Ascom City (in the vicinity of Inchon). Other areas of troop concentration were at Taejon and Pusan. The service or base command's veterinary organization was augmented by the 69th, 142d, 143d, and 144th Veterinary Food Inspection Detachments.

Pacific Air Command, U.S. Army

In the immediate postwar period, the FEAF (Far East Air Forces) continued to expand, and, in December 1945, it was named Pacific Air Command, U.S. Army. Its headquarters moved from the Philippines into Tokyo during May 1946. As of December 1945, the Pacific theater's air forces command included the Fifth Air Force (with headquarters at Nagoya, Japan), the Seventh Air Force (with headquarters at Hickam Field), and the Thirteenth Air Force (with headquarters at Fort McKinley); also, there were two Army Strategic Air Forces, the Eighth in the Ryukyus and the Twentieth in the Marianas.

U.S. ARMY FORCES, CHINA-BURMA-INDIA

The Army Veterinary Service with USAFCBI had its origin when a Veterinary Corps officer and two enlisted personnel arrived on a troop transport from the Zone of Interior at Karachi, India, during May 1942 (*10*). In the fall of 1941, a military mission under Brig. Gen. John Magruder had come into this area to study American lend-lease supply to Allied China; this was followed (in March 1942) by the U.S. Military Mission to China headed by Brig. Gen. Joseph W. Stilwell. Both missions centered their activities in the Nationalist China capital, Chungking. There was also a military observer group with the British Army at New Delhi, India, and another group of personnel was once assigned to the former U.S.

Military Mission to Iran and Iraq under Brig. Gen. Raymond A. Wheeler but which had been diverted to Karachi. Each of these groups included one or two Medical Corps officers to care for the medical needs of mission personnel, who for the most part eventually became members of important operational elements of the China-Burma-India theater that was now coming into existence; none had assigned veterinary personnel. During this early period, however, pursuant to a request initiated in China, forwarded through the offices of two quasi-official Chinese agencies (namely; the American Bureau for Medical Aid to China, Inc., and China Defense Supplies, Inc.), and endorsed by the White House, the Surgeon General's Office planned for and obtained the assignment of a Veterinary Corps officer and two veterinary enlisted personnel for duty with the Northwest Epizootic Prevention Bureau, Ministry of Agriculture and Forestry, Lanchow, Kansu Province, China (*11*). They were assigned to the Stilwell China Mission for administrative purposes, arriving there at Chungking on 3 April 1942, and departing later that month for Lanchow.

Thus, these special veterinary mission personnel were the first of the Army Veterinary Service to arrive in the developing China-Burma-India theater, but, until August 1942, when theater headquarters ordered their return from Lanchow and their reassignment to the U.S. military training center at Rāmgarh, India, they are not really a part of the beginning theater veterinary service organization. In regard to this veterinary mission, it may be observed that it readily accomplished its primary objective to investigate the reported animal disease threat to approximately 20,000 camels and 400 horses along the Red Caravan Trail through northwestern China into Russia, but its energies were soon redirected by local Chinese officials to develop a long-term project to bring into China some American veterinarians to set up laboratories for producing veterinary biologicals needed to control indigenous animal diseases, such as rinderpest, anthrax, glanders, and rabies, and to expedite, of course, the importation of American laboratory material. The project was of questionable military value and only a start on biologicals production was made before August 1942.

With the formation of USAFCBI, the Stilwell Mission, which had accompanied the retreat of remnants of the Chinese forces out of Burma in the spring-early summer of 1942, set up two headquarters at widely separated locations, a forward echelon theater headquarters in Chungking and a rear echelon theater headquarters at New Delhi. The latter included the medical staff for the theater except the theater surgeon himself, who in the fall of 1942 moved to the advance echelon headquarters at Chungking. No theater veterinarian was designated at this time, but, in the interim, the Wheeler Iran-Iraq mission began to form the theater services of supply organization, complete with a headquarters medical section, located first at Karachi and then soon moving to New Delhi. During July, September, and

November 1942, new arrivals of personnel from the Zone of Interior increased the veterinary service organization in the China-Burma-India theater to a total of 10 officers and 10 enlisted personnel. By the end of 1942, these were on duty at various services of supply installations including Base Section 1 (or the Karachi area which was then the major portal of entry for U.S. forces coming into the theater), Rāmgarh training center which was organized for the training and equipping of the new Allied-sponsored Chinese Army in India, and the Tenth Air Force. These personnel were busily engaged in surveying the food industries and developing appropriate standards for local procurement, in conducting surveillance inspections on nonperishable subsistence which was arriving from outside the theater or was being furnished by the British, and in starting the reorganization of the Chinese Army's veterinary service organization.

Actually, there was little or no technical coordination of these activities in India except informally by a veterinary officer who, during March 1943, was ordered, on request of the theater surgeon at Headquarters, Forward Echelon, USAFCBI, to transfer for duty in China in connection with the training of the Chinese military forces there (as contrasted with the Chinese military forces in training in India). Four veterinary officers had already been ordered into China to the new U.S. Field Artillery and Infantry Training Centers at K'un-ming. On 8 April 1943, the officer was designated as theater veterinarian, but, as he was preoccupied with his original duty assignment and too far distant from the major medical planning staffs of theater rear echelon headquarters and Headquarters, Service of Supply, at New Delhi, there was yet no truly operational central office for administering the theater veterinary service organization. This situation continued until July 1943 when a more senior veterinary officer, newly arrived from the Zone of Interior, was assigned to Headquarters, Rear Echelon, and then (on 23 July 1943) was designated as theater veterinarian.[7] The latter's position was strengthened in the spring of 1944 when the forward echelon of theater headquarters was moved and merged with the headquarters staff at New Delhi.

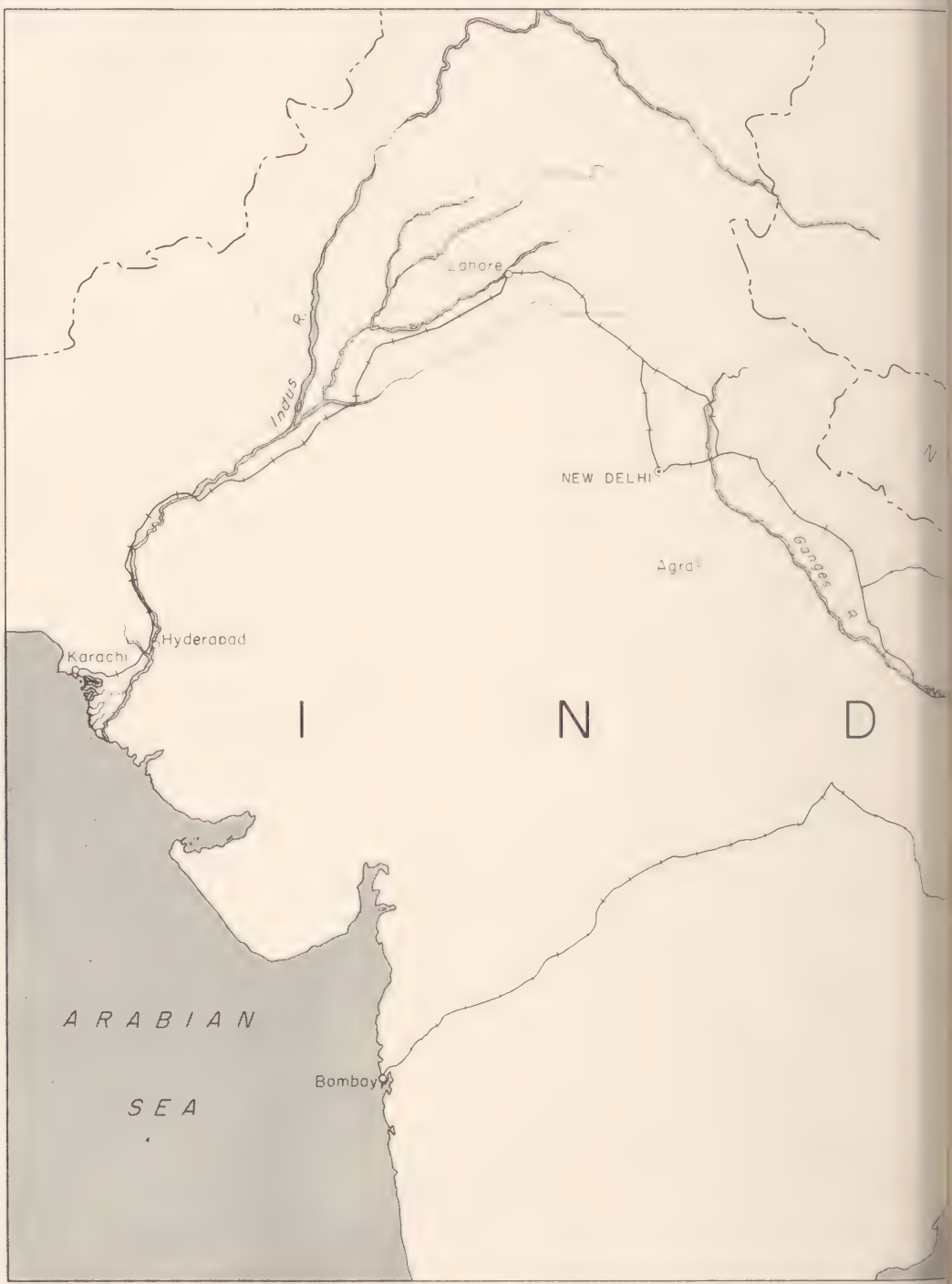
In the early months of 1944, the Army Veterinary Service with USAFCBI had approximately 90 officers and twice that number of enlisted personnel; numerically, it was almost equally divided between the India-Burma and the China sectors (map 5), and only a third were on duty at U.S. services of supply and air force installations, while two-thirds of them were being utilized for instructing, on liaison duty with, or providing supporting veterinary animal services to, the Chinese armies in India and in China. By mid-June 1944, the veterinary officer strength was increased to 141. These officers were assigned to duty as follows:

[7] Theater veterinarians included Maj. W. E. Jennings, VC (8 April to 22 July 1943) and Lt. Col. R. W. Mohri, VC (23 July 1943 to October 1944).

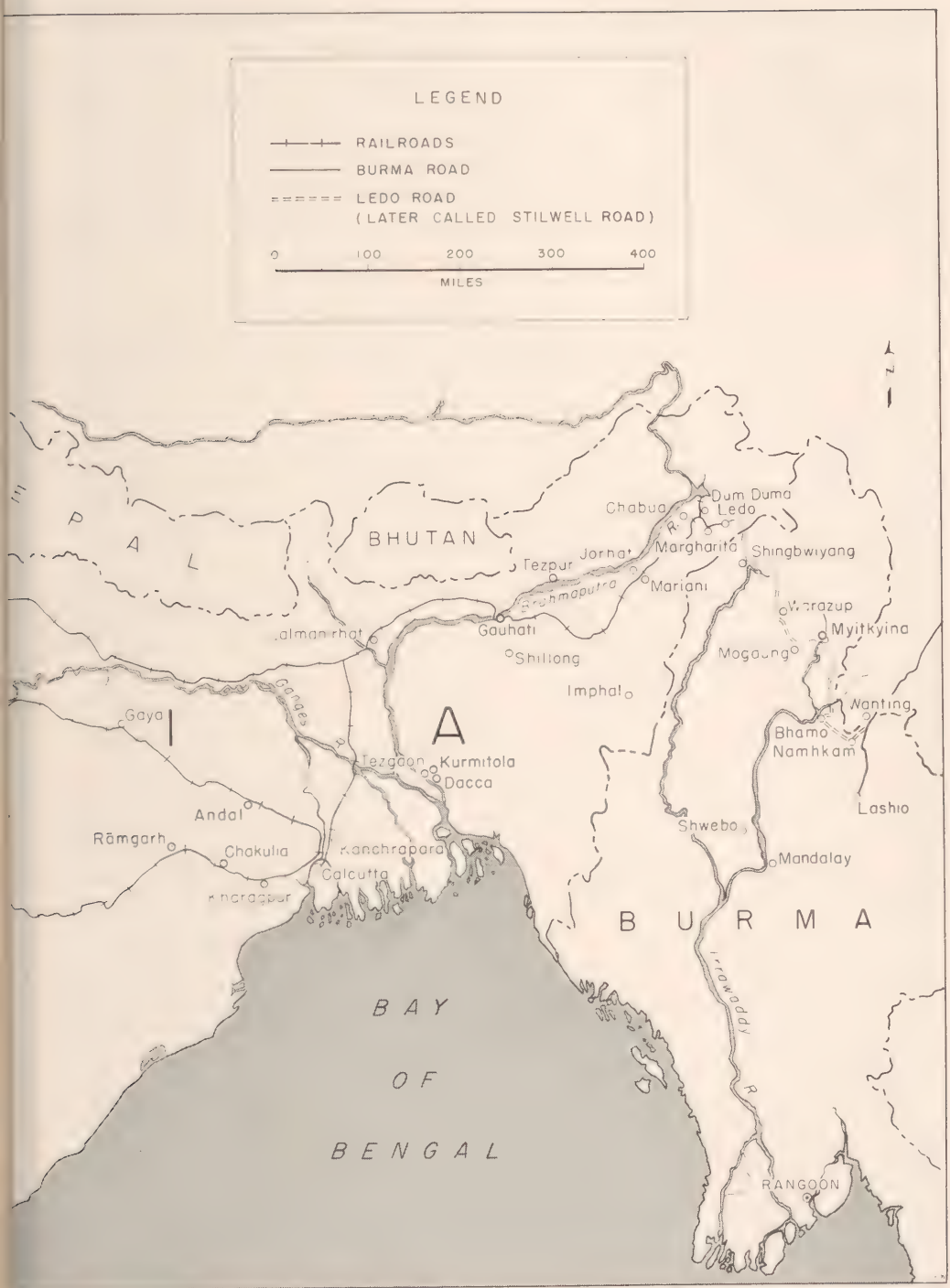
	Veterinary Officers
Theater Surgeon's Office, Headquarters, USAFCBI	1
Surgeon's Office, Headquarters, Services of Supply, at New Delhi	1
Base Section 1, at Karachi	1
Base Section 2, at Calcutta	8
Base Section 3, at Ledo	3
Advance Section 1, at K'un-ming	3
Advance Section 2, at Chabua	4
Station complement, Rāmgarh Training Center	4
War Dog Detachment	1
Services of Supply Remount Service	6
Services of Supply General Depot 1	1
Services of Supply General Depot 2	1
1st Veterinary Company (Separate)	6
9th Medical Laboratory	1
Theater troops:	
Company E (Veterinary), 13th Mountain Medical Battalion	10
5307th Composite Regiment (Provisional)	5
Rāmgarh Training Center (instructional staff)	2
X-Force Operations Staff	9
Y-Force Operations Staff	42
Z-Force Operations Staff	27
Surgeon's Office, Headquarters, AAF, India-Burma Sector	1
China-Burma-India Air Service Command	2
Fourteenth Air Force	1
India-China Wing, Air Transport Command	1

On 22 August 1944, largely as a result of recommendations made by the Voorhees Mission that had been sent by The Surgeon General to study the theater's medical department, the medical sections of theater headquarters and services of supply headquarters in New Delhi were physically merged because there were generally insufficient numbers of personnel available to properly staff both of them. The former theater headquarters veterinarian (as were most of that medical staff) was then reassigned to the Medical Section, Headquarters, Services of Supply, and concurrently designated as deputy theater veterinarian to administer veterinary affairs in China-Burma-India on a theaterwide basis. During October 1944, the China-Burma-India theater was separated into USAFIBT (U.S. Army Forces, India-Burma theater) and USAFCT (U.S. Army Forces, China theater), and the former theater veterinarian was continued with the staff of the new India-Burma theater.

In later paragraphs describing the veterinary functional organization with USAFCBI, it was not always possible to abruptly terminate the story of certain activities as of October 1944, because generally what occurred, during the winter of 1944–45, in India-Burma and in China was at least begun or planned for in the original theater. Futhermore, when the first truck convoy moved over the new Stilwell Road, in January 1945, the fight for Burma was all but ended, and the new India-Burma theater became the



Map 5.—India-Burma theater, showing principal location



f operations of the Army Veterinary Service.

rear service area to logistically support the new China theater. In an analysis of the extent of veterinary activities in the China-Burma-India theater, the Army Veterinary Service inspected an unknown quantity of subsistence and treated 1,800 cases of sick and wounded Army horses and mules. Also, in the period from May 1943 through 31 October 1944, its veterinary hospitals admitted 3,563 animal cases belonging to the Chinese military forces for treatment, and the professional treatment of another 9,513 cases was supervised by Veterinary Corps officers on liaison duty with those forces in the field.

Services of Supply, U.S. Army Forces, China-Burma-India

The China-Burma-India theater's services of supply organization, established in June 1942, provided for the coordination and supervision of: Veterinary food inspection activities for the U.S. air, ground, and service forces; the veterinary services which were conducted in connection with the receipt, processing, and distribution of horses and mules to the Chinese Army in India and to U.S. combat teams; and the operation of a rear echelon animal evacuation and veterinary hospitalization system in rear of the Allied combat forces fighting for Burma. Its headquarters medical staff, then at New Delhi, eventually obtained (in October 1942) a staff veterinarian who technically supervised veterinary activities and personnel among the various advance and base section subcommands—each also having a headquarters medical section. The subcommands included: Base Section 1 (with headquarters at Karachi), comprising the western half of India; Base Section 2 (with headquarters at Calcutta), located in southeastern India; Base Section 3, later named Advance Section 3 (with headquarters at Ledo) which administered the service forces immediately in back of the combat areas in Burma; Advance Section 2, later referred to as Intermediate Section 2 (with headquarters at Chabua), comprising the northeast India province of Assam; and Advance Section 1, once named Advance Base Section 3 (with headquarters at K'un-ming), including the China sector of the theater. During the earlier period, the veterinary service was concerned with the inspection of foods in the Karachi area, but this was gradually extended to the Rāmgarh training center and thence throughout the theater. Service forces veterinary personnel were also involved, during this early period, in remount operations and in the care of animals for the Chinese combat units.

Food inspection.—Actually, the veterinary food inspection services advanced slowly in the theater because senior commanders would not grant higher or prior consideration for such personnel in contrast to veterinary animal service personnel. This was of serious importance in view of the scattering of troops over a very large geographic area and because of the nature of supplying or feeding the troops. It may be noted that until late 1944 veterinary food inspection personnel were only provisionally assigned or attached to services of supply installations, and neither were their num-

bers nor grades increased, for example, over a year's time ending September 1944, even though the theater's ration strength had increased threefold to approximately 200,000 troops. At this time, veterinary food inspection services were being conducted by only 19 veterinary officers and approximately 75 enlisted personnel. These were located at Agra, Bombay, Calcutta, Chabua, Chakulia, Dinjan, Gaya, Hyderabad, Sind, Jorhat, Karachi, Kharagpur, Kurmitola Lalmanirhat, Ledo, New Delhi, Andal, Rāmgarh, Dum Duma, and Tezpur in India, at Shingbwiyang in Burma, and in China at Cheng-tu, Chungking, K'un-ming, and Kuei-lin. The service forces veterinary service performed nearly all food inspection services in the theater except at those few places where air forces personnel were available, and after September 1942 included the inspection also of fresh friuts, vegetables, and other non-aminmal-origin foods which were brought into the theater or procured locally.

The Army's subsistence supply in the China-Burma-India theater was obtained in various ways: by incoming shipments of regular supplies from the Zone of Interior and from local sources such as by direct Army purchase, through the Royal Indian Army Service Corps under the general provisions of United States-British lend-lease agreement, and through the Chinese War Area Service Corps. Each system of subsistence supply presented a variety of serious problems to the Army Veterinary Service, but the system of supply involving Indian resources proved especially difficult where better grade and sanitary quality foods were expected than in war-torn China where the U.S. forces were forced to live off the country as guests of the Chinese Nationalist Government.

In regard to the subsistence supply from local sources in India, it may be noted that originally the Army in the Karachi area surveyed the local food industries and developed specifications for the direct purchase by the Army of fresh meats (beef, mutton, and chicken), fish, butter, eggs, fruits and vegetables. Eventually, the Royal Indian Army Service Corps was superimposed over U.S. military purchasing operations, and the former then bought the foods used by the Army. The Indian Army's contract demands for sanitary and other quality factors were below the minimal American standards, and, although there was no perceptible need for any U.S. veterinary grading of this locally procured subsistence (because all of it was substandard), the Army Veterinary Service did—with some objection on the part of British and Indian authorities—conduct inspections for sanitary quality. Thus, in abattoirs, which were sometimes nothing more than roofed-over cement platforms, without refrigerated holding rooms, and where operations were haphazardly conducted if not altogether obscured by flies and buzzards, Veterinary Corps officers conducted ante mortem and post mortem inspections and constantly supervised the slaughter of food animals; there was no other inspection. At times, whole herds of animals

were rejected from slaughter on account of emaciation. Diseases such as rinderpest, foot-and-mouth disease, and anthrax were among the causes for rejecting many animals; also, local laws and religious customs acted to limit the animal supply and to hamper slaughterhouse operations so that "our troops were not bothered by having to eat beef of high quality."

In regard to local purchases of butter, the Army Veterinary Service made "* * * no attempt to score native butter, it was either not bad enough to prevent acceptance or it was too bad. Mottled, undersalted and full of dirt, it was manufactured mostly from buffalo milk." The 1943 Thanksgiving Day's turkey supply into New Delhi was a "sickening mess" of turkey, chickens, ducks, geese, guinea fowl, and other birds in varying degrees of having been dressed, drawn, and cold slaughtered. However, this occurred only once, because thereafter the Army did not depend on local Indian supply to provide Thanksgiving Day and Christmas Day dinners in the China-Burma-India theater. A more constant problem was that pertaining to fresh eggs as the delivered shipments were subject to inspections or candling of each egg for edibility; outside shell contamination was generally overlooked in the inspections because all eggs were dirty, but, frequently, 90 or more percent were rejected from deliveries when candling inspections revealed inside rots, mold, blood rings, and advanced embryo development. Fruits and vegetables, of low or inferior grade quality, were supplied under contract, when available and if deemed to be an economical purchase by the Royal Indian Army Service Corps. Considerable quantities of these items were lost during shipments in steel, airtight cars of the Indian railroad system that under the heat of the tropical sun became like cooking ovens, and, of course, there were further losses in the messhalls incident to their preparation. In connection with perishable subsistence supply, it may be added that refrigerated warehouse space and refrigerated railroad cars were not available until the fall of 1944, and, up to that time, only limited quantities of boneless beef, chicken, fish, and ice cream could be processed under veterinary supervision in the Karachi and Calcutta areas, from which points small amounts were moved by airplane in the northeastern areas of India where large numbers of troops were located. In August 1944, the U.S. forces received a shipment of perishable subsistence (fresh frozen mutton) for the first time from extratheater sources, and several carloads were successfully moved over the Indian railway system from Calcutta to Chabua.

Fortunately, little if any of the local food supply in the India-Burma sector of the theater reached the U.S. forces in the China sector where another foreign agency, the Chinese War Area Service Command provided housing and fed them, except for a few items, which that agency could not obtain locally, to "round-out" their diet. Gradually, as veterinary personnel became available, veterinary sanitary inspection controls were set up over the foods of animal origin provided by the Chinese to U.S. installations, but the Army Veterinary Service had little if anything to do with the handling

and preparation of these foods in the Chinese-operated messhalls or hostels. However, in the early period of activities in China (or Advance Section 1), veterinary officers originally acted as area sanitary inspectors over the water supply and in the Chinese War Area Service Command-operated messhalls and managed the operations of an abattoir in K'un-ming which supplied beef, pork, and chicken to the military personnel there and at Yang-chieh and Yün-nan-i (*12*). In the 6-month period, 1 October 1943 through March 1944, the veterinary inspections at the K'un-ming abattoir were extended to 4,280 cattle, 5,779 hogs, and 74,337 chickens, yielding 1,194,715 pounds of beef, 549,349 pounds of pork, and 136,139 pounds of chicken; rejections at ante mortem and post mortem inspections, being made largely on account of physical condition, tuberculosis, and *Cysticercus bovis* infestation, aggregated 327 cattle (or beef carcasses), 205 hogs, and 752 chickens. In the field with the Chinese military forces, U.S. liaison personnel were rationed with the Chinese army or division to which attached, and, though some efforts were made to interest the Chinese Army Veterinary Service in the inspection of food supplies, the field forces food supply was generally uninspected.

Nonperishable subsistence, originating chiefly with the regular supply from the Zone of Interior, did not seem to exist in the China-Burma-India theater because large quantities of canned and dry subsistence perished on account of deteriorating, spoilage, and damage. Following its arrival at the Karachi or Calcutta ports, the nonperishable subsistence was handled and rehandled many times, usually by native laborers who were indifferent to the need for carefully loading and stacking; it was then transshipped in the Indian steel railroad cars whose internal temperatures came to be that of 160° F., was en route for periods as long as 5 weeks, and was finally stored, frequently in the open or in the native bashas which lasted for about 6 months, after which time the roof began to leak and the building started to sag and then finally collapsed (*10*).

The summer monsoon begins in Assam in the latter part of April and continues until the following November. During this period the rainfall amounts to several hundred inches. In between rains, the tropical sun beats down relentlessly to make the atmosphere similar to a Swedish bath. Metals rust with a swiftness that is almost unbelievable. Pin holes appear magically in cans permitting the entrance of bacteria and molds. Dried subsistence becomes soggy in the tropical atmosphere and rapidly deteriorates from bacterial and chemical decomposition. Insects engage in mass attacks on the dried products, especially flour which is usually alive with weevils. Sugar is surrounded by swarms of bees that sometimes have the audacity to hive in the same warehouses. Add to these factors the damage incurred by countless rodents that are so prevalent in the tropics and the difficulties of preserving subsistence may be understood.

Though much of the subsistence losses occurred from factors of intratheater origin and some such losses could have been minimized by greater attention to higher priority on storage warehouse construction as materiel became available, there is no doubt that losses originated with inherent

weaknesses in the subsistence as it was shipped from the Zone of Interior. Such losses were caused by the packing in commercial containers or lightweight cardboard cartons and the packaging in overly large, poorly lacquered, and light-gage tin cans, or in cloth and paper bags that were not waterproof and were readily bent or torn. During 1943, canned milk products alone accounted for 80 percent of the reported losses of nonperishable meat and dairy products in the China-Burma-India theater, or 430,326 pounds, indicating that the product had an inherent weakness not shown in other products. Actually, for that year, veterinary-reported rejections for nonperishable meat and dairy products totaled 572,781 pounds, but regarding these "* * * it should be remembered the list does not include the hundreds of thousands of pounds of canned fruits, fruit juices, jellies, jams, vegetables, condiments, flour, rice, beans, and breakfast cereals that were also condemned during this period, nor the unrecorded losses at stations where veterinary inspection was not maintained" (*10*). The condition of subsistence stores and recommendations for minimizing losses were routinely reported by veterinary officers, and attempts at reclamation were made, but, even so, this did not prevent incidents where subsistence was airdropped to troops fighting in Burma by being simply shoved out of the doors of low-flying airplanes, and sacks of reclaimed food (because box materiel was unavailable) were transported for use in the combat areas.

Animal service.—Another major veterinary activity with Services of Supply, USAFCBI, concerned the animals which were received in the theater and used by U.S. combat teams and the Chinese Army in India in the Burma campaigns. In the fall of 1942, the Chinese forces in training at the U.S. center at Rāmgarh began to receive animals from British sources in India, and then, as these forces were moved into the Ledo area, preparatory to their reentry into the fight for Burma, a sizable remount depot was developed there. In the spring of 1943, the 1st Veterinary Company (Separate), newly arrived from the Zone of Interior and as a service forces-assigned unit, set up a provisional veterinary hospital at Ledo to support this depot and the veterinary animal service activities of the local X-Force units. During June 1943, this company also established a veterinary hospital at Rāmgarh and in October 1943 set up hospital facilities near a newly developing remount depot at Shillong. Subsequently, this company's activities at the Rāmgarh center were taken over by three small veterinary units (the 39th, 40th, and 41st Veterinary Animal Service Detachments which were activated and organized within the theater during July 1944), and its hospital activities at Ledo were augmented in September 1944 by another two veterinary detachments (the 51st and 52d Veterinary Animal Service Detachments which had just arrived from the Zone of Interior). During December 1944, the 2d Veterinary Company (Separate), with Negro enlisted personnel, newly arrived from the Zone of Interior, was moved into the Ledo area, and then the entire 1st Veterinary Company (Separate) was removed to Shillong. At the same time, the 39th, 40th, and 41st

Veterinary Animal Service Detachments were transferred from Rāmgarh, where all animal activities were now discontinued, and were attached to the company at Shillong. Aside from the foregoing two companies and five veterinary animal service detachments, the services of supply organization in September 1944 activated and organized the 78th Veterinary Hospital Detachment to operate in the Calcutta area to assist in the disembarkation and transshipment of Army animals arriving at that port from the Zone of Interior and Pacific theaters; before this time, animals unsuitable for immediate shipment to the depots were cared for at the port by an Indian Army veterinary hospital.

The veterinary animal service activities with Services of Supply paralleled the remount operations in the India-Burma sector of the theater. These operations, prior to March 1944, were conducted by the Army Veterinary Service, beginning in the fall of 1942, when veterinary officers undertook the supervision of the British supply of animals to Chinese divisions in training at Rāmgarh and then later at Ledo. During November and December 1943, the first few of 30 or more animal transports that were to bring approximately 10,000 horses and mules into the theater during the war were unloaded and the animals processed for distribution, but it was not until March 1944 that a Quartermaster Corps remount officer was officially named for the India-Burma sector of the theater. At the same time, a provisional remount depot organization (the 5321st Depot) was being organized at Ledo; this was disbanded during July 1944 when a newly activated 699th Quartermaster Remount Troop was organized to conduct operations there. Also, in this month, the 698th Quartermaster Remount Troop, newly arrived from the Zone of Interior, set up operations at Rāmgarh—both troops having organic veterinary detachments. Before the end of 1944 another two remount troops were brought into the theater services of supply remount operations: Troop A, 252d Quartermaster Remount Squadron (later redesignated 475th Quartermaster Remount Troop) and Troop A, 253d Quartermaster Remount Squadron (later renamed 476th Quartermaster Remount Troop). These four remount troops, each with its own veterinary detachment, were operating depots at Shillong, Ledo, and Myitkyina (noting, of course, that the Rāmgarh depot facility was now closed), and there was a port remount section (the 3113th Quartermaster Section) at Calcutta.

Laboratory service.—The veterinary requirements for the laboratory analyses of foods and clinicodiagnostic services in the theater were met by the 9th Medical Laboratory, complete with its own veterinary section, which arrived from the Zone of Interior during February 1944 and set up station as a services of supply-controlled unit at Chabua.

Chinese Training and Combat Command

Successor to the original Stilwell China Mission, the Chinese Training and Combat Command was the U.S. military administrative organization in the China-Burma-India theater which undertook the training, supplying, reorganizing, and advising of the Allied-sponsored Chinese military forces.

When the Japanese captured Burma, the existing Chinese forces were divided, with one group of two divisions retreating out of Burma into northeastern India and the other and larger group into China; thus, the Chinese Army in India, and the Chinese Army in China. This occurred before the summer of 1942, and the overall Allied strategic plan now became one for a buildup of an aerial supply route over the Himalaya Mountain "Hump" into China (which would satisfy the most urgent supply needs of the Chinese forces in China) until northern Burma was cleared of the enemy and the overland Burma Road route (later renamed Stilwell Road) could be completed to increase the flow of supplies there. Obviously, initial energies were directed on the reorganizations of the Chinese combat divisions in India and, subsequently, of the Chinese forces in southwestern China, which would eventually converge in the fight for Burma. These were referred to in the code names of X- (or X-ray) Force and Y- (or Yoke) Force. Later, a third group of approximately 30 Chinese divisions in southeastern China was entered into the sponsorship of the United States, called Z- (or Zebra) Force; however, the schedule for training and equipping the Z-Force divisions was disrupted by the Japanese advances into southern China in mid-1944, so that these units were merged with the earlier Chinese Y-Forces, and the two became the Chinese Army in China. Concurrently, the Allied-sponsored X-Force became the Chinese Army in India. As already indicated, approximately a hundred Veterinary Corps officers, or two-thirds of the total number in the China-Burma-India theater, came on field duty with, or in units directly supporting, these Chinese units.

For purposes of administering U.S. activities and personnel with these Chinese forces, the Chinese Training and Combat Command was established as a major subordinate element of USAFCBI. It was subdivided into a staff group which acted in an advisory capacity to the Chinese General Staff, a training group which maintained schools of instruction for Chinese Army personnel, and a liaison group comprising the U.S. Army teams which were actually attached to the Chinese units entering the combat areas. Through this command organization, the Army Veterinary Service soon became involved with the wartime development of the Chinese Army veterinary service and the improvement of Chinese Army animal care and management; for example, for the first time in modern Chinese military history, its animals were properly shod.

X-Force.—Preparatory training and reorganization of the Chinese 22d and 38th Divisions, remnants of which had straggled out of Burma in the spring of 1942, was undertaken at Rāmgarh. During July 1942, veterinary personnel were deployed there primarily in connection with Services of Supply food inspection activities, but, before the end of another month, these officers and men were already involved in the survey of 126 ponies—once with the Chinese units in Burma—that the British had shipped and returned to the two Chinese divisions. Of this group, the Army Veterinary Service destroyed 13



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FIGURE 33.—Supervision of animal sick call in the training center for the Chinese military forces, Rāmgarh, India, 1944.

on account of glanders, 35 for surra, and 6 on account of epizootic lymphangitis infections. A small amount of veterinary equipment and supplies were purchased locally to satisfy immediate needs for the care of the animals, while requisitions for larger amounts to reequip the Chinese Army Veterinary Service of X-Force were processed for the British to meet. Beginning in September 1942, British horses, mules, and tonga ponies of Indian Army origin were provided to the Chinese units (100 in September, 700 in November, and 850 in December 1942), and the assigned veterinary officer was then designated additional duty as the remount officer at the Rāmgarh center. He found the animals to be "decrepit, oversized and undersized, ungroomed, and the outline of every bone could be clearly seen beneath their shaggy hides," and in the new arrivals he reported the presence of surra, strangles, and piroplasmosis (*10*). "Piroplasmosis accounted for the death of several animals, and, with no facilities available to dip them or drugs to prepare a dipping solution, it was necessary to manually remove the ticks in order to control the outbreak."

The program for instructing the Chinese Army Veterinary Service at Rāmgarh was begun in October 1942 and finally came to an end after 2 years of almost continuous operation (fig. 33). During this period, the Army Veteri-

nary Service provided instructional services to 345 Chinese personnel (including veterinary officers and enlisted personnel, stable officers, stable sergeants, and horseshoers) and unit training to 36 veterinary detachments (including those of four army corps, division veterinary platoons, and a variety of detachments for field artillery battalions, infantry regiments and divisions, and animal transport battalions and regiments). The importance of this training to the Allied war effort is emphasized by the fact that there truly were no modern standards for Chinese military veterinary medicine; that animals were used (or expended) in the Chinese Army until they dropped in their tracks on account of disease or injury, lack of shoeing, debility, or exhaustion; and that horses and mules probably would comprise the only means of transport for the Chinese military units both in the Burma campaigns and in China.

In the spring of 1943, the veterinary school training program and other activities at Rāmgarh were temporarily increased when the third Chinese combat unit, the 30th Division, was added to X-Force by airlift from China, and a Veterinary Corps officer was temporarily assigned to X-Force Operations Staff at Ledo. Subsequently, as the original school training program came to an end, the Chinese X-Force units moved into the northeastern India province of Assam and thence into Burma, and the operations of the Chinese Training and Combat Command in that area were then organized under the new Northern Combat Area Command.

Y-Force.—As the veterinary instructional program for Chinese Army veterinarians and horseshoers in the Allied-sponsored X-Force was launched, a similar program was inaugurated for the 27 Chinese divisions of the U.S.-sponsored Y-Force. In early February 1943, the first two of four veterinary officers were transferred (from Rāmgarh)to K'un-ming, China, to establish a veterinary instructional program at the U.S. Yünnan Field Artillery Training Center, and, on 1 March 1943, another two officers were detailed to inaugurate a second veterinary school training program at the U.S. Yünnan Infantry Training Center, also located in K'un-ming. Later, during March 1943, the veterinary officer, who was to be designated as theater veterinarian in addition to other duties (April to July 1943), was assigned from the India-Burma sector to Y-Force Operations Staff to supervise the whole veterinary program of instructing the Chinese divisions. Subsequently, in September-October 1943, as more veterinary personnel became available from the India-Burma sector of the theater, a training program for Chinese Army veterinary personnel and horseshoers was established for two army groups at Ta-li; also, 3,000 Chinese Army animals were vaccinated against anthrax and were mallein tested for glanders before this training instructional group ceased operations in February 1944 (fig. 34). A similar school training project was inaugurated for another Chinese Army group at Yen-shan in November 1943; this project lasted until May 1944. Altogether, the student output from the four veterinary school programs approximated 1,500 Chinese personnel of Y-Force. The schedules for Chinese Army veterinary personnel included the subjects of animal diseases



U.S. ARMY PHOTO

FIGURE 34.—A Veterinary Corps officer hoof branding an anthrax-vaccinated Chinese Army animal.

and injuries, veterinary first aid treatment, restraint of animals, animal care and management, and horseshoeing.

By December 1943, Veterinary Corps officers were being assigned to liaison duty with Y-Force's Chinese divisions, armies, and group armies. By February 1944, the Army Veterinary Service with the Y-Force Operations Staff totaled 37 officers and 41 enlisted personnel (including 22 horseshoer specialists). The Veterinary Corps officers were distributed as follows (*13*):

	Veterinary officers
Surgeon's Office, Headquarters, Y-Force Operations Staff	1
Field Artillery Training Center	3
Infantry Training Center	1
Training Instruction Group 1	13
Training Instruction Group 2	8
Training Instruction Group 3	1
Training Instruction Group 4	8
93d Division	1
Guerrillas	1

Z-Force.—As previously noted, the 30 Chinese divisions of Z-Force were never fully trained or organized, nor equipped, before they were threatened, in the summer of 1944, by the continuing advances of the Japanese southward along the Canton-Hankow-Peking railroad corridor and toward the U.S. airbases in southeastern China. However, after October-November 1943, a veterinary school training program had been in operation for Z-Force at the U.S. infantry training center in Kwei-lin, and, by January 1944, the Army Veterinary Service with Z-Force was fully organized. Six months later, or at the time that these personnel were moved westward to K'un-ming and added to the existing Y-Force, approximately 70 Chinese veterinary officers and 300 veterinary enlisted personnel and horseshoers had been trained at Kwei-lin.

Northern Combat Area Command.—Concurrent with these preparations of the three Chinese forces, the Army Veterinary Service in the China-Burma-India theater planned for augmenting both the Chinese Army veterinary services and that performed by U.S. veterinary liaison personnel on duty with the Chinese Army units, with small U.S. veterinary animal service detachments (or units) and veterinary companies (separate) which could evacuate sick and wounded animals from the Chinese frontline divisions and treat them. In the early summer of 1943, a requisition for 30 detachments was made by the theater on the War Department; each such detachment was to have two officers and nine enlisted personnel, such as comprised the veterinary section, medical detachment, of the organization in the artillery of a standard mountain division. The requisition was compromised more than a year later when, in July 1944, the War Department granted authorization for the activation and organization within the theater of 12 veterinary detachments—each having one officer and four enlisted personnel, such as were typically provided in the attached veterinary section of a standard 75-mm. howitzer pack field artillery battalion—and followed this with the shipment into the theater during September and October 1944 of another 12 detachments from the Zone of Interior. These included the 39th through the 50th, and the 51st through the 62d, respectively, Veterinary Animal Service Detachments. Actually, the field artillery battalion-type of organization for the detachments was discontinued after their arrival in the China-Burma-India theater, and new T/O's for teamlike units were prescribed instead. With the exception of three (the 39th, 40th, and 41st) of the 12 locally organized detachments and two (the 51st and 62d) of the 12 detachments received from the Zone of Interior, all were deployed into China; the excepted units, as previously noted, were deployed in India and Burma with the Services of Supply organization.

During the period that the foregoing veterinary animal service detachments were requisitioned and until they became available, X-Force's Chinese divisions were reentered into the fight for Burma, and a U.S. long-range jungle penetration combat team, the 5307th Composite Regiment (also called

Merrill's Marauders), had been organized and started on its way southward from North Burma toward Myitkyina. In February 1944, when the campaign started, these divisions with their U.S. veterinary liaison personnel and the combat team were grouped under the newly organized Northern Area Command which directed the operations used to clear the Japanese out of Burma, particularly from that area of the proposed overland route from India, through Burma, and into China. For the direct support of the Chinese divisional veterinary services and the Army Veterinary Service with the 5307th Composite Regiment, Northern Area Combat Command was assigned Company E (Veterinary) of the 13th Mountain Medical Battalion, which had arrived in the theater from the Zone of Interior in December 1943. The company's platoons each operated more or less as separate entities, setting up numerous provisional veterinary hospital sites in back of the advancing United States and Chinese forces. After the capture of Myitkyina (during August 1944), Company E (Veterinary), 13th Mountain Medical Battalion, continued to support the veterinary services of the Chinese Army in India as the latter pushed southward into the Central Burma campaign.

The veterinary service organization in 5307th Composite Regiment included a regimental veterinarian and three battalion veterinary sections. The latter cared for the animals of two pack troops (the 31st and 33d Quartermaster Pack Troops, which themselves had no organic veterinary detachments) such as were divided between the regiment's three infantry battalions. After the capture of Myitkyina, the original U.S. regimental combat team was succeeded by the 5332d Brigade (Provisional) or MARS Force. The latter, comprising the 124th Cavalry Regiment (Special), 475th Infantry Regiment, the Chinese 1st Regiment, the 612th and 613th Field Artillery Battalions, and the 31st, 33d, 35th, 37th, 252d, and 253d Quartermaster Pack Troops, had 5,810 mules and horses. These were provided first aid treatment by six veterinary sections, specially attached to the regiments, and the organic veterinary detachments of the two field artillery battalions, all under the technical supervision of a brigade veterinarian. In the rear areas of the Northern Combat Area Command, the brigade's veterinary service organization was supported by the 18th Veterinary Evacuation Hospital which came into the theater from the Zone of Interior in August 1944, and, of course, Company E (Veterinary), 13th Mountain Medical Battalion, supported the Chinese combat divisions. Before the end of 1944, the 19th Veterinary Evacuation Hospital, and the 7th, 43d, and 44th Veterinary Companies (Separate) arrived from the Zone of Interior and were assigned to Northern Combat Area Command, but, of these, only the 7th was actually deployed; one platoon was attached to the 18th Veterinary Evacuation Hospital, and the remainder operated provisional hospitals in back of the Chinese divisions. Of course, by the end of 1944, the China-Burma-India theater was split, and the 19th Veterinary Evacuation Hospital, after receipt of its equipment, was transferred to the China

theater. The 43d and 44th Veterinary Companies (Separate) were excess to requirements (due to belated arrival) in the India-Burma theater and, being unrequisitioned by the China theater, eventually were inactivated.

In regard to the Army Veterinary Service with the Chinese combat divisions in the Burma campaign, its activities are best described using the actual report (*10*) of one Veterinary Corps liaison officer as a classic record:

During July and August, 1943, the remainder of the 38th Division arrived in Ledo from Rāmgarh. My duties were primarily concerned with the problems related to animal management in the division. Much time was spent each day in travelling from one animal unit to another, inspecting animals, stables, and making recommendations to unit commanders and veterinary officers for the correction of defects that were observed. Most Chinese veterinary officers soon conformed to modern methods of wound treatment, but drug supplies were often too inadequate to permit a full departure from obsolete procedures. Unit commanders were advised to maintain definite feeding and watering schedules under the supervision of unit officers to eliminate the numerous cases of digestive disorders from which their animals suffered. It was a custom in the Chinese Army for each individual soldier to be responsible for his assigned animal and he fed, watered, and cared for it according to his own system. Efforts were also made to discourage the Chinese from bathing their animals in nearby streams, which reduced the amount of grooming, but resulted in numerous cases of rhinitis and conjunctivitis.

Controlling flies by convincing the Chinese that stable manure should be buried was one of our more successful achievements and far more successful than getting them to properly dispose of human excreta. Open latrines were common and often located not too far from mess kitchens.

Bamboo was the only material available for the construction of stables and corrals. The best type of stable was open on all sides, with uprights of large bamboo and a roof of bamboo leaves. The standings consisted of split logs sloped to the rear in order to provide drainage. The texture of the soil in the area sometimes caused the logs to become dislodged which the Chinese would fail to replace unless constantly coaxed to do so. Preventive maintenance was a Chinese weakness and always a problem to the veterinary liaison officer.

The best managed animal units were those commanded by officers with whom I had been able to make personal friends. They would keep their animals in good condition and accept my recommendations to save "face" for me. In turn it was necessary for me to praise their methods to their superior officers.

The division was scheduled to go into combat in the fall of 1943 and I made every effort to instill confidence in the Chinese veterinary officers in their treatment of animal casualties. At Rāmgarh, much of the actual work had been performed by the USF veterinary liaison officers with the Chinese acting as observers, but with the knowledge that combat operations were imminent I knew that it would be necessary for the Chinese to rely on their training. Therefore, I convinced them to assume the initiative and refused to treat the casualties brought to my attention, but outlined the treatment and insisted that they perform the actual work. All veterinary officers were taught to pass a stomach tube and were given instruction in conducting the mallein test. The only conditions which I felt should not be treated by unit veterinarians were diseases of a contagious nature and those which required hospitalization. These were evacuated to a USF veterinary hospital that supported the division in Assam after I had examined the casualties and issued the necessary authority.

A division school was established and instruction given to unit horse officers and noncommissioned officers. The management of animals in the field was particularly stressed, and emphasis placed on the proper fitting of pack saddles and adjustment of equip-

ment. A horseshoeing school was also placed in operation to continue the training of unit horseshoers who had been unable to complete or take the course at Rāmgarh. Class instruction was given on the working of metal and anatomy of the horse's foot. This was followed by individual instruction on trimming of the feet, fitting the shoes, and nailing them into position. The last three weeks of the course was devoted to the actual shoeing of animals by the students under the supervision of an enlisted USF horseshoer. A few students were incapable of absorbing instruction but the majority turned out to be fair mechanics.

By September, the Chinese veterinary personnel was fairly well trained. Much time was spent in the inspection of animal equipment and assisting the Chinese quartermaster in requisitioning the proper supplies. Unserviceable animals were destroyed and every effort was made to place the serviceable animals in the best condition possible. At the close of the month, most animal units were ready for combat, although some equipment shortages still existed. British veterinary supplies were slow in arriving and many that did were exceedingly poor in quality.

The month of October was spent principally in securing veterinary supplies and equipping units moving out from the Ledo area into North Burma. I would move up several days march from Ledo and inspect the animals of units that had been on the march, recommending the evacuation of casualties that were unable to continue. Many new USF line officers were arriving to be assigned to liaison duties with the division, and I was given the additional task of orienting them. Few had had any experience with animal transport troops and it was necessary for me to instruct them in animal management and packing.

By the end of October, 1943, enough Chinese troops had been massed in North Burma to begin an advance against the Japanese. A reconnaissance had already been made of part of the region to determine the location and suitability of grazing areas, because the troops were to be largely supplied by air dropping and transport limitations would not permit long forage supply. I was ordered to make a reconnaissance via obervation plane over the Hukawng valley of North Burma where the first contacts with the enemy were expected. After charting the areas which appeared from aerial observation to be suitable for grazing purposes, I was to join the advance elements of the Chinese Army and make a ground reconnaissance of the areas as soon as it was tactically possible to do so. When I arrived in the northern part of the Hukawng valley, I secured the aid of the native guides to take me to the charted areas and was furnished a platoon of Chinese Infantry for protection.

The Hukawng valley lies in Northern Burma with its long axis running from North to South. It is the first open country to be reached after crossing the mountains from Upper Assam to Burma. The campaign had progressed some fifteen miles into the valley before stiff Japanese resistance was encountered. One central air dropping field was established where the transport planes flying in from Assam dropped supplies to the troops. Most of the Chinese animal units were stationed close to the field and were employed to pack the supplies to forward areas, a round trip of about twenty miles which could be made in a day. I would alternate making trips with the various units. Animal casualties were averaging about twenty percent, seven percent of which were totally incapacitated. The casualties were principally due to pack saddle injuries and penetrating wounds of the feet and legs due to contact with sharp bamboo stubs which remained after cutting out trails. Veterinary supplies were air dropped on radio request as these were needed.

In that it was tactically unsafe to graze animals during this period, it became necessary for armed grass cutting details to be sent out daily from each unit to cut about twenty-five pounds of grass per animal. The grass was principally kunai and elephant grass which apparently was of good quality and maintained the animals in good condition. Cracked barley and gram was air dropped and fed on the basis of six pounds of

the former and two of the latter to our animals that were mostly India tonga ponies weighing between six hundred and eight hundred pounds. Requests for increases in the grain ration were recommended to G–4, but refused due to the limited air tonnage. No animal casualties were evacuated from the units during this period, because the division veterinary platoon had not yet joined the forward elements and USF veterinary organizations had not arrived. Therefore, regardless of the types of casualties, all were treated by unit veterinarians in the horse park area and due to the slowness with which the campaign progressed it was possible to do so without difficulty. However, by the latter part of December 1943, the number of casualties had increased to the extent that the division veterinary platoon was ordered forward to establish a hospital and relieve the regimental and battalion veterinary detachments. Animal deaths from October to December 1943 inclusive were less than one percent from all causes.

The first week of January, 1944, the veterinary platoon arrived in the area. Capt. George E. Burch, VC, junior veterinary liaison officer with the 38th Division had accompanied the platoon forward and the two of us assisted in setting up a hospital. The platoon consisted of two Chinese veterinary officers and eighteen enlisted men and we considered it to be the poorest trained unit in the division. Therefore, we decided to make the platoon our headquarters. We convinced the Chinese command that all animals evacuated from units within the division to the veterinary platoon should be accompanied by soldier caretakers on the basis of one for every two animals, to feed, water, groom and cut grass for the patients. In a few days there were thirty casualties in the hospital which consisted mostly of back injuries, penetrating wounds of lower extremities and a few cases of influenza from units that had recently moved forward. Lack of proper veterinary supplies forced us to rely on good nursing and blood transfusions for the influenza cases. The first battle casualties were received in late January, the result of enemy artillery fire. We managed to procure a small quantity of sulfanilamide crystals from a portable surgical hospital and covered the wounds with Vaseline gauze. Most of the cases made uneventful recoveries with the exception of those in which the injuries penetrated the abdominal cavity.

One of us remained with the veterinary platoon at all times, while the other visited the units in forward positions to insure that animals were being properly cared for and that casualties requiring evacuation were sent to the hospital. As a general rule, Chinese line and veterinary officers were reluctant to evacuate casualties, fearing they would be short of transport, but losing sight of the fact that early evacuation of a casualty would insure the future usefulness of the animal.

In early February, 1944, a USF veterinary organization arrived in the area to support the 38th Division. This was one platoon of Co. "E" (Vet), 13th Mountain Medical Battalion. Our policy was to evacuate serious casualties, all surgery and infectious diseases to this unit, the lighter cases being kept at the division veterinary platoon for treatment. The USF platoon was equipped with one 2½ ton 6 x 6 stock rack body truck, but this could not be used as an animal ambulance due to terrain obstacles, and casualties had to be evacuated by leading. The Hukawng valley was essentially level, but heavily wooded and swampy. Water for animals was not a problem, but grass grew only in clearings and rice paddies.

The grain ration consisted of barley and gram (a legume). This was air dropped in forty-pound, double-strength burlap bags marked with a large "G." It was impossible to tell if the bag contained barley or gram, and unless the issuing officer opened each bag prior to issue, some units would obtain all of one kind. When gram was fed in excess, it produced a severe diarrhea, while a full ration of barley was not palatable and was frequently rejected by the animals. My recommendations to the Services of Supply to mix the two grains prior to shipping were ignored without reason.

The middle of February 1943 saw the Japanese resistance in the upper Hukawng valley broken and due to the heavy human and animal casualties in the 38th division,

ten days were permitted for reorganization. During this phase I made numerous inspections of all animals in company with unit commanders. Backs were examined and saddle pads were adjusted wherever indicated. It was found that the American Phillips type pack saddle had caused fewer abrasions than the British type, although the latter was more suitable for animals with thin backs and flat ribs. The British saddle was particularly damaging to animals with high withers, because of insufficient clearance to these parts. While the American saddle weighed twice as much as the British, this factor was not as important as a proper fit.

The tonga pony animals were carrying a pay load of 130–180 pounds. We also found that the more compact a load, the easier it could be carried, while bulky loads had a tendency to shift. I spent three days with the Seagrave Unit (volunteer hospital unit organized by Lt. Col. Gordon Seagrave, a medical missionary to Burma at the outbreak of the war) breaking their loads into more compact and easily packed units and did the same for USF Signal Corps units attached to the 38th Division. Unfortunately, staff members of the USF (CT & CC) associated with the Chinese Army in this campaign had had very little experience with pack transportation and most of them lacked a clear understanding of a pack animal's capabilities. Therefore, it was necessary to bring these matters to their attention as well as to the Chinese.

In February, trails and roads were sufficiently improved so that the horse carts which had been developed at Rāmgarh Training Center were brought forward to augment the pack transport. These carts were two-wheeled affairs, built of steel, rubber tires and equipped with steel shafts that were welded solidly to the body of the cart. One animal was to be hitched between the shafts and if the going was too difficult, additional animals were to be hitched in tandem. The carts were supposed to carry between 500–1,000 pounds. The troubles we had with these carts apparently had not been anticipated at Rāmgarh. First, they were not equipped with brakes and when going down steep hills, the holdback straps failed to stop the carts which proceeded to gather momentum and usually resulted in injuring severely the animals that pulled them. The bed of the cart was narrow so that it could be pulled along the trails, but when loaded it became topheavy and tipped over carrying the animal with it because the shafts were welded to the frame. The Chinese were unable to train their animals to pull evenly, so that the ones which were hitched in tandem to the front of the cart rarely assisted in pulling it. General Stilwell asked my opinion on the merits of the cart and I suggested that it be abandoned until wide, level loads were available.

The British had developed a veterinary chest for the use of small veterinary detachments, the contents of which were supposed to treat 3,000 animal casualties for one day. These were called Unit Pattern Chests, containing more cotton and bandages than was necessary, but lacking in drugs. The chests were made of thin plywood which failed to withstand moisture. The contents of many had deteriorated and were useless by the time we received them. We tried constantly to train the Chinese to conserve their veterinary supplies and stretch their use but to no avail. When they had consumed them, they appealed to us to replenish their stocks and when we failed, we lost much "face."

On March 1st, the 38th Division was again ready to continue the campaign. I was ordered to accompany a combat team of one regiment of Infantry and a battalion of 75-mm. Pack (How) Artillery to which was attached a battalion of USF Infantry, part of Merrill's Marauders * * *. The mission was a long range penetration project, with the object of encircling the Japanese forces that held the South entrance of the Hukawng valley. Chinese Army animals numbered about 400. I took with me one Chinese veterinary officer and seven veterinary enlisted men. To reach our destination it was necessary to trek through swamps and over high mountains, and it was expected to take two weeks to reach our objectives. One veterinary enlisted man was attached to each sepa-

rate contingent of the combat team and supplied with drugs and equipment to last for the march.

We experienced little difficulty marching through the swamps, but lost a number of animals on the high mountain trails due to slippery footing. Sometimes it was possible to haul out the animals that had fallen into the gorges below the trails with ropes, but more often this proved to be impossible due to the injuries suffered by the animals or the depth of the gorges. It was then necessary for us to climb down and destroy them. In many places the trail led through dense jungles and had to be cleared by the forward elements before the column could proceed. In these instances our rate of march averaged only two to three miles a day. Several mountains were so steep, that it became necessary to unpack the artillery loads and carry them manually up the mountain side. The pack loads of the Seagrave hospital unit were also troublesome due to the width of the packs which would catch between the trees and bushes on either side of the narrow trail. When animals became too weak or lame to continue the march, they were destroyed and their loads distributed among the others. Grain rations were supposed to be air dropped along the way, but Japanese patrolling was so heavy that our column would be held up for several days at a time and the animals forced to do without grain during the hold up. There is no grass in the mountain jungles, so that bamboo leaves had to be fed exclusively. Bamboo leaves apparently have little nutritive value, but do supply the necessary bulk. The principal difficulties encountered due to feeding this type of forage were impactions from feeding excessive quantities. The deteriorated aloes boluses that had been issued for minor digestive disturbances proved to be adequate to produce a mild catharsis. A Chinese soldier who had given three to his suffering animal without results, finally took one himself with no effect and the aloes boluses lost much "face."

After the first week of the march, forty percent of the animals had developed abrasions of the back with varying degrees of severity. This incidence was lower than I had anticipated considering the type of terrain we were forced to march over. Animal casualties due to enemy action were only ten in number and most of these were due to small arm sniper fire. Enemy artillery secured a direct hit on three animals in the column and their worries were at an end. Water for both animals and men proved to be a problem at times when we were held up on ridge tops and could not reach the streams below due to enemy fire. On one occasion we were forced to go two full days without water which is a considerable length of time in the heat of the tropics.

The immediate mission of the combat team was to cut the line of communications behind the Japanese main position in the Hukawng valley. In order to do this it was necessary to make a night march from the mountains into the valley below using streams for trails because of the thick jungles. After reaching our destination we were subjected to heavy artillery fire and forced to keep our animals standing in a stream for five days before we could move them. During the three weeks' march our animals lost an average of two hundred pounds in weight.

When the Japanese had been forced to retreat, all animals were inspected and arrangements made to evacuate the more seriously injured to a hospital established by Co. "E" (Vet), 13th Mountain Medical Battalion, which had moved up to a point twenty miles in our rear. During the three weeks' march, twenty-six of the four hundred animals we had started with, had died or were destroyed. We evacuated thirty casualties and of the remainder, sixty percent required treatment. I located a good grazing area and recommended to the Chinese commander that all animals be given a period of three weeks' rest before going into service again.

I was given my first leave after sixteen months overseas service and did not return to my organization until April 25th.

Routine inspection of animals, supervising the treatment of casualties in the division veterinary platoon and evacuating more severe casualties to USF veterinary installations

constituted my principal duties until May 20th. The division veterinary platoon was now a well-functioning unit. Routine treatment of abrasions, thrush and other common conditions were now well take care of by the Chinese personnel.

On May 21st, I received orders to inspect the animals of one Infantry regiment and a battalion of pack artillery and eliminate all that were not capable of making an extended march through the mountains. This combat team had been designated to make a flanking movement and eventually to be responsible for cutting Japanese lines of communication. A few days after the team had departed, the entire division received orders to move out. During the ten-day march that followed, the division animals received the equivalent of two days' grain ration and ate nothing but bamboo leaves. The shortage of grain was due to staff officers who had deliberately reduced the ration without consulting the liaison officers and resulted in a fifty pound loss of weight for each animal in ten days.

I finally caught up with the animals of the combat team that had been left behind in the mountains for purposes of security when the team went down into the valley. I was ordered to remain with these animals until the team had cut the road behind the Japanese lines and established a block. We waited three days and then started on a two-day trip supposedly to join the road block troops. Due to heavy rains the preceding 48 hours, it was necessary to swim three different swollen streams with the pack train of three hundred animals. We finally arrived at the Mogaung river which proved to be too wide and too swift for crossing and had to return to the edge of the mountains to await further orders.

I received orders to proceed to the vicinity of the road block to inspect two hundred animals which had been captured and to salvage what I could from the stores of a captured Japanese veterinary hospital. The animals were of all types and descriptions and in a deplorable condition from lack of forage, mud, rain, no shelter, and overwork. All but seventy-five were destroyed and buried. The salvaged group were malleined and all proved to be negative to the test. Some of the animals were affected with a dermatitis due to mud, rain, and sunscald and were devoid of hair over the face and croup. The monsoon was now in full swing and it rained every day.

The Chinese tactical commander called upon me for a report on the captured animals. He informed me that unless they could be worked, or he could get his own animals cross the Mogaung river, it would be impossible for him to hold out much longer due to the inability of his men to carry ammunition and supplies forward to the fighting troops from the air dropping field. I suggested that the Japanese animals be used and to improvise pack saddles from riding saddles, blankets and what crude native pack saddles could be obtained.

A Chinese veterinary officer and I held a daily sick call for the captured animals, of which about twenty-five percent had wounds badly infested with screw-worms. It was a six-mile round trip from the air drop field to the front lines over the worst trail that I had ever travelled. Over half of the trail led through a swamp where the water rose to the horses' bellies, and the footing was made treacherous by the roots of trees that crossed it, and tripped the horses. If a horse was strong and not carrying too much weight upon his back, he could get up when he fell, if not, he drowned before we were able to get the pack off and his head out of water. After ten days of this packing, we had lost over half of the captured animals and the remainder were in a pitiable condition due to loss of hair from standing in the water, and severe lacerations of the coronet and lower extremities. It was decided to destroy all but three of the animals which had done little packing and were highly prized by several Chinese officers to whom they had been assigned. Had it not been for the captured Japanese animals, the Chinese would have been unable to maintain the road block which was said to have been a turning point in the Northern Burma campaign.

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After completion of the pack trips, I was free to examine and salvage the captured Japanese veterinary equipment. I was surprised to find that both drugs and instruments were excellent. The equipment was comparable to that of the USF veterinary evacuation hospital and far surpassed that of a veterinary company. About fifty percent of the drugs were of German manufacture and the rest, Japanese. A single microscope was found that proved to be in splendid condition and apparently had been manufactured in Germany. All of the supplies were distributed to the veterinary units of the 38th Division.

During the first six months of 1944, animal losses amounted to sixteen percent of the 2,000 animals in the 38th Division. It is believed that this record is rather remarkable considering the type of terrain over which the division operated, the amount of packing required of the animals and that all long forage was obtained from uncured grasses and bamboo leaves. Difficulties in air dropping did not always insure an adequate grain ration for the animals.

In the six months' operational period, it is estimated that motor transport was used less than ten percent of the time. Thus, had it not been for pack animal transport, which permitted heavy equipment to be carried from air dropping fields to forward elements and artillery to be employed in long range penetration projects, the campaign in North Burma would have been greatly retarded.

Tenth and Fourteenth Air Forces

The veterinary service organization with the AAF in the China-Burma-India theater was limited in numbers of personnel, because veterinary personnel assigned to Services of Supply were available to perform the required inspections of food supplies to airbases except for a few located too far distant from service forces areas of operations (such as at Agra and Andal). There was the Tenth Air Force, with headquarters initially at New Delhi, and its Air Service Command, and the Air Volunteer Group, under Gen. Claire L. Chennault, in China, which was inducted in mid-1942 into U.S. military service as the China Air Task Force and later, in March 1943, was reorganized as the Fourteenth Air Force. A Veterinary Corps officer was assigned to the Medical Section, Tenth Air Service Command, before the end of 1942, and he acted also in the capacity of air force veterinarian. In August 1943, Headquarters, AAF, India-Burma Sector, was organized to coordinate the Tenth Air Force and the China-Burma-India Air Service Command which was the merger of Tenth and Fourteenth Air Service Commands; the Fourteenth Air Force (less its air service command), however, continued to operate separately in China but had no veterinary food inspection personnel assigned to it until 1944. Another air forces organization was the Air Transport Command's India-China Wing established in December 1942 with headquarters initially at Chabua. This organization was eventually assigned a Veterinary Corps officer, who, as of August 1944, was supervising the inspection of the food supply at as many as 12 bases in India and 4 in China.

U.S. Army Forces, India-Burma Theater

The Army Veterinary Service with USAFIBT, which theater, as noted earlier, was established in October 1944, was the continuation of that in the

original India-Burma Sector of the former USAFCBI. The central office for administering the theater's veterinary service organization was located in the medical section of Headquarters, Services of Supply, at New Delhi.[8] This medical section (including its veterinarian) served in a dual capacity or also as the theater headquarters' medical section because the two had been merged in August 1944 just before the China-Burma-India command was divided. This double status of the theater service forces veterinarian lasted until 15 May 1945, when Headquarters, Services of Supply, was abolished and the staff veterinarian was moved along with the other medical staff officers to Headquarters, USAFIBT.

When the India-Burma theater was established, the Allied Chinese military forces in Burma were beginning to clear the Japanese from their last holdings on the developing overland supply route into China, and, after that time, the theater was important only to support military operations in China. Many veterinary personnel were then transferred to USAFCT, as the requirements for them in India and Burma became less urgent. As of 1 November 1944, the India-Burma theater had 92 veterinary officers, but many of these, plus new arrivals, were redeployed gradually to the China theater. As of 1 January 1945, this personnel strength reached a temporary peak of 118 officers and then was gradually reduced to 74 by 1 July 1945. At the beginning of 1945, the veterinary service organization included:

Veterinarian, Surgeon's Office, Headquarters, USAFIBT, and Medical Section, Services of Supply

Theater-assigned Troops:
- Veterinarian, India-Burma Theater War Dog Detachment
- Sector Veterinarian, Northern Combat Area Command:
  - 7th, 43d, and 44th Veterinary Companies (Separate)
  - 18th and 19th Veterinary Evacuation Hospitals
  - Company E (Veterinary), 13th Mountain Medical Battalion
  - Veterinarian, Surgeon's Office, 5332d Brigade (Provisional):
    - Veterinary Detachment, 124th Cavalry Regiment
    - Veterinary Detachment, 475th Infantry Regiment
    - Veterinary Detachments, 612th and 613th Field Artillery Pack Battalions
  - Veterinary Liaison Officers on duty with Chinese Army in India

Services of Supply:
- Sector Veterinarian, Base Section 1:
  - 94th Veterinary Food Inspection Detachment
- American Delhi Military Area Command:
  - 79th Veterinary Food Inspection Detachment
- Sector Veterinarian, Base Section 2:
  - 78th Veterinary Hospital Detachment
  - 80th, 81st, 82d, 83d, 901st, 902d, 903d, 904th, and 905th Veterinary Food Inspection Detachments
  - Veterinarian, Headquarters, 69th General Depot (or General Depot No. 2)
- Sector Veterinarian, Intermediate Section 2:
  - 1st Veterinary Company (Separate)
  - 39th, 40th, and 41st Veterinary Animal Service Detachments
  - 91st, 92d, 93d, and 906th Veterinary Food Inspection Detachments

[8] Theater veterinarians and officers acting in that capacity included Col. R. W. Mohri, VC (October 1944 to October 1945), Maj. N. G. Claus, VC (October 1945 to November 1945), and Capt. I. Zimmerman, VC (November 1945 through December 1945).

Veterinarian, Surgeon's Office, Headquarters, USAFIBT, and Medical Section, Services of Supply—Continued

Services of Supply—Continued
Sector Veterinarian—Continued
Veterinarian, 9th Medical Laboratory
Veterinary Detachment, Troop A of 253d Quartermaster Remount Squadron
Veterinary Detachments, Troop A of 252d Quartermaster Remount Squadron and 699th Quartermaster Remount Troop
Sector Veterinarian, Advance Section 3:
2d Veterinary Company (Separate)
51st and 52d Veterinary Animal Service Detachments
88th, 89th, 90th, 907th, and 908th Veterinary Food Inspection Detachments
Veterinary Detachment, 698th Quartermaster Remount Troop
Veterinarian, Surgeon's Office, Air Service Command, AAF:
Veterinarian, 3d Air Depot Group
Veterinarian, 305th Air Service Center
Veterinarian, Surgeon's Office, India-China Division, Air Transport Command

The foregoing organizational list includes veterinary food inspection detachments, then called medical composite sections (food inspection), which were new to any similar listing for the original China-Burma-India theater. Sixteen such detachments (the 79th through the 94th Veterinary Food Inspection Detachments) arrived during December 1944 from the Zone of Interior, and an additional eight (the 901st through the 908th, inclusive) were activated on 26 December 1944, within the theater; four veterinary food inspection detachments (84th through the 87th) were immediately transferred to USAFCT, and twenty were initially deployed in the Services of Supply organization. Others were activated in mid-1945, 2 on 2 May 1945 (the 916th and 917th Veterinary Food Inspection Detachments), 14 on 11 June 1945 (the 937th through the 950th, inclusive), and 5 on 17 July 1945 (the 951st through the 955th, inclusive). The unit activations of June 1945 were made specifically for organization in India-Burma, utilizing personnel drawn from Company E (Veterinary), 13th Mountain Medical Battalion, which now was being inactivated, and for transfer eventually to USAFCT; however, of these 14, 8 (the 937th through 944th) were actually organized and ordered to China, but only 4 had departed before V–J Day.

As of 1 August 1945, the veterinary personnel strength included 71 officers who were on duty with the medical sections of theater headquarters, of Base, Intermediate, and Advance Section subcommands, Northern Combat Area Command, Air Service Command, and Air Transport Command; 1 veterinary evacuation hospital, 3 veterinary companies (separate), 5 veterinary animal service detachments, and 31 veterinary food inspection detachments; 2 medical laboratories; and 2 subsistence storage depots, a quartermaster war dog detachment, and 4 quartermaster remount troops. Following V–J Day, the India-Burma theater inactivated many of these units, and most of its personnel were returned to the United States so that by late January 1946 the theater's veterinary service organization, headed by an acting theater veterinarian in the grade of captain, totaled but 11 officers, who were assigned as follows:

Surgeon's Office, Headquarters, USAFIBT, at New Delhi
American Delhi Military Area Command

Surgeon's Office, Base Section, at Calcutta:
94th, 901st, and 955th Veterinary Food Inspection Detachments at Andal, Calcutta, and Karachi
Port of Embarkation, Karachi
Surgeon's Office, Intermediate Section, at Chabua:
93d Veterinary Food Inspection Detachment, at Chabua
475th and 699th Quartermaster Remount Troops, at Gauhati

Effective on 31 May 1946, USAFIBT was inactivated, and personnel and activities remaining in that area were taken over by the new Detachment, U.S. Army Forces, India, with headquarters at New Delhi. By this time, all veterinary personnel and units had been withdrawn.

Summarizing, veterinary animal service activities in the India-Burma theater included the care and treatment of U.S. military horses and mules (peak of strength, 7,531 in February 1945). During the period from November 1944 to February 1946, there were 6,347 admissions from an average animal strength of 4,237; a total of 1,552 animals died or were destroyed, and 93 animals were killed in action. Also, the U.S. forces veterinary hospital installations admitted, in the period from November 1944 through April 1945, more than 2,200 cases of sick and wounded animals from the Chinese Army in India for treatment, and another 4,791 cases were treated by or under supervision of Veterinary Corps officers on liaison duty with the Chinese combat divisions in the field. The accomplishments regarding subsistence inspection, statistically, were not found in available documents.

Services of Supply, U.S. Army Forces, India-Burma Theater.—Headquarters, Services of Supply, with location in New Delhi, included the consolidated medical sections of theater and service forces headquarters until its disbandment in May 1945. During this time, the Services of Supply field organization comprised five area or section subcommands originally set up in the India-Burma Sector of the former China-Burma-India theater: Base Section 1 (with headquarters at Karachi), Base Section 2 (with headquarters at Calcutta), Intermediate Section 2 (with headquarters at Chabua, Assam), Advance Section 3 (with headquarters at Ledo), and the American Delhi Military Area Command. Each section included a staff veterinary officer in the headquarters medical section who administered the veterinary personnel and activities within the defined geographic area of the section concerned. Generally, these activities in the Delhi area and in the two base sections, Base Section 1 in western India and Base Section 2 in southeastern India, were largely that of food inspection, although Base Section 2, including the Calcutta port, necessarily played a role in the disembarkation of animal transports and transshipment of the animals northward. However, in the northeasterly located Intermediate and Advance Sections, the activities were divided between veterinary food inspection and veterinary animal service in the remount depots which provided animals to the Allied ground tactical troops fighting in Burma. It may be noted that, effective on 15 May 1945, when Headquarters, Services of Supply, was discontinued, the foregoing sub-

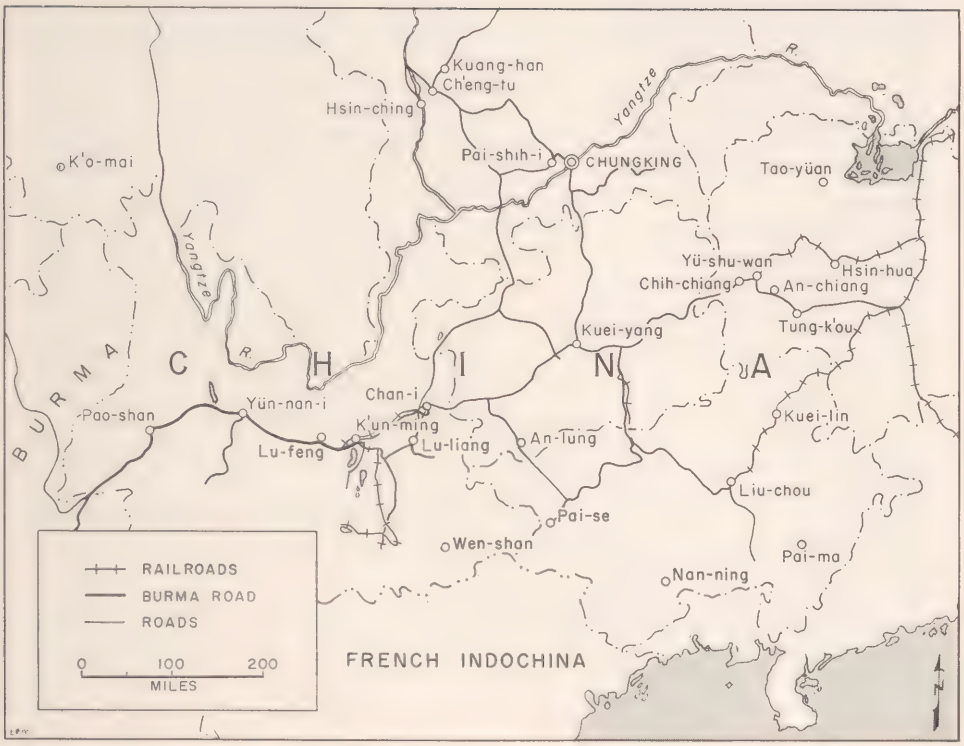
section commands were transferred to direct control of Headquarters, USAFIBT. Concurrently, Base Sections 1 and 2 were consolidated into the new Base Section, with headquarters at Calcutta, and Intermediate Section 2 and Advance Section 3 were renamed Intermediate Section and Advance Section, respectively. On 1 November 1945, Advance Section was discontinued and was absorbed by Intermediate Section.

There was no immediate change in the veterinary laboratory services during the transition of the India-Burma Sector of the former China-Burma-India theater into the India-Burma theater. However, during May 1945, these activities, then being conducted by the 9th Medical Laboratory, were augmented when a second unit, the 29th Medical Laboratory, complete with a veterinary section, arrived from the Zone of Interior.

Northern Combat Area Command.—In the Northern Combat Area Command, the continuation of the Allied command organization originally created during February 1944 in the former China-Burma-India theater, the Army Veterinary Service provided close-in veterinary animal services support to the 5332d Brigade (Provisional), advisory assistance to the Chinese military forces, and established a chain of animal evacuation and veterinary hospitalization for sick, injured, and wounded animals. The Allied objective was to clear the Japanese completely from the projected overland route to China (the Stilwell Road) and to drive southward through the central part of Burma to Mandalay. At the beginning of the new campaign in Burma, Headquarters, Northern Combat Area Command, included a sector veterinary section at Ledo, and there were six veterinary company and hospital units in the area: Company E (Veterinary) of 13th Mountain Medical Battalion, the 7th, 43d, and 44th Veterinary Companies (Separate), and the 18th and 19th Veterinary Evacuation Hospitals. Of these, only the 7th Veterinary Company, Company E (Veterinary) of 13th Mountain Medical Battalion, and the 18th Veterinary Evacuation Hospital were actively deployed. The 43d and the 44th Veterinary Companies (Separate) both arrived in the theater too late to enter the combat area and were used instead as service troops until their inactivation (in June 1945); the 19th Veterinary Evacuation Hospital was transferred in February 1945 to the China theater after receipt of its equipment. During this period of the Burma campaign, the number of Veterinary Corps officers on liaison duty with the Chinese military forces increased from 9 in December 1944 to 13 by 1 May 1945, but, by the end of July 1945, no officers were so assigned within the theater.

U.S. Army Forces, China Theater

In the fall of 1944 when the China-Burma-India theater was divided into USAFIBT and USAFCT, the veterinary service organization in China included that with the combined Y-Force and Z-Force Operations Staffs, which were concerned with the Chinese military forces, and the few personnel with the services of supply organization who were inspecting the foods



Map 6.—Locations of veterinary units in the China theater, as of 1945.

supplied by the Chinese War Area Service Command at U.S. installations, particularly at the larger bases of the Fourteenth Air Force. Headquarters, USAFCT, was established at Chungking, but in December 1944 this became the advance echelon staff, and the new Headquarters, Rear Echelon, USAFCT, with location at K'un-ming was established. Only the latter set up supervisory staff controls over Medical Department activities and personnel at theater headquarters level, and it included the theater surgeon's office to which a Veterinary Corps officer was assigned [9] and designated (on 27 December 1944) as the theater veterinarian (*14*). Of course by this time, the fight for the reopening of the overland route (or old Burma Road) into China was all but ended, and the major military effort was being redirected from the India-Burma Sector to further the defense of American airbases in southeastern China which were being threatened by the Japanese armies.

As of 1 March 1945, the Army Veterinary Service with USAFCT (map 6) totaled 89 officers assigned as follows: Theater surgeon's office, 2; Services of Supply (including 4 veterinary food inspection detachments), 7; Air Forces Air Service Command, 2; Chinese Combat Command (including

[9] Theater veterinarians included Col. J. E. Fuller, VC (December 1944 to January 1946) and then Col. E. W. Young, VC.

19 veterinary animal service detachments), 71; and Chinese Training Command, 7. As of 2 September 1945, this number of personnel had increased to 123 veterinary officers, then located as follows:

Surgeon's Office, Headquarters, USAFCT
Theater Headquarters Station Command:
245th Veterinary Food Inspection Detachment
Surgeon's Office, Headquarters, Services of Supply:
Base Section 1:
87th, 243d, 915th, 917th, 938th, 940th, and 943d Veterinary Food Inspection Detachments
Base Section 2:
84th, 85th, and 944th Veterinary Food Inspection Detachments
Base Section 3:
82d and 244th Veterinary Food Inspection Detachments
Base Section 4:
80th Veterinary Food Inspection Detachment
Base Section 5:
86th, 913th, and 914th Veterinary Food Inspection Detachments
Surgeon's Office, Air Service Command, Army Air Forces, China Theater:
Station Veterinary Detachment, 315th Service Group
Surgeon's Office, Chinese Training Command:
Station Veterinary Detachment
Surgeon's Office, Chinese Combat Command:
7th Veterinary Company (Separate)
19th Veterinary Evacuation Hospital
42d through 50th, and 53d through 62d Veterinary Animal Service Detachments
Veterinary liaison officers

During July 1945, Headquarters, Rear Echelon, of the China theater, was discontinued and its medical staff section, including the theater veterinarian, was moved to the advance headquarters group at Chungking; however, following V–J Day, the theater surgeon's office was returned to K'unming where it added the Services of Supply headquarters medical staff to act as the central administrative office for both theater and service forces medical personnel and activities. Major efforts were then directed toward the early and rapid phase-out of activities, the inactivation of units, and the return of personnel to the United States. On 10 September 1945, the Shanghai Base Command, complete with a staff veterinary officer, was established; during the next month, the theater veterinarian moved with the theater surgeon's office from K'un-ming to Shanghai, where the Shanghai Base Command's medical section and theater surgeon's office were merged. Effective on 1 May 1946, USAFCT became U.S. Army Forces, China, and the few remaining veterinary officers were transferred to the latter's subordinate element, called China Service Command.

In the China theater, the Army Veterinary Service had considerably more to do with Chinese Army animals than with U.S. military horses and mules. In fact, the latter's animal strength reached a peak of 1,740 in July 1945, and only 426 cases of diseases and injuries were treated among these animals. During the period from January to September 1945, 288 animals



FIGURE 35.—The horseshoeing shop, Veterinary School, Infantry Training Center, K'un-ming, China.

died or were destroyed (including 140 destroyed because of surra and 71 because of glanders). The Allied Chinese military forces had an estimated 16,000 to 22,000 animals, and U.S. veterinary officers, in the period from February through August 1945, treated or supervised the treatment of more than 11,000 cases of diseases and injuries in Chinese Army animals. Most of the U.S. animals in the theater were received from the India-Burma theater for issue to the Chinese combat units; however, a few were utilized in the mounting of U.S. military liaison teams and veterinary units on duty with the Chinese military forces or in the schools for instructing Chinese Army personnel in veterinary medicine, animal care and management, pack animal packing, and horseshoeing (fig. 35). In regard to meat and dairy hygiene services in the China theater, the Army Veterinary Service inspected, in the period from January through September 1945, approximately 46,740,000 pounds of foods, as follows:

	Pounds
On delivery at purchase	11,700,000
Army receipt except purchase	9,625,000
Prior to shipment	3,510,000
At time of issue	20,750,000
In storage	1,155,000

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Services of Supply, U.S. Army Forces, China Theater.—In China, those service forces personnel and activities supporting the U.S. commands which were concerned with the Chinese military forces and American air operations were grouped under Headquarters, Services of Supply, USAFCT, with headquarters at K'un-ming. The latter's medical section did not gain a staff veterinary officer until 16 January 1945, who then proceeded to organize and revitalize the existent meager veterinary services at two or three abattoirs throughout southern China. By the end of the next month, the Army Veterinary Service with Services of Supply had seven veterinary officers, including four as commanding officers of veterinary food inspection detachments (or units). The mission of this veterinary service organization had now become (1) the inspection of foods being supplied to U.S. personnel by the Chinese (through its War Area Service Command) and the development and supervision of abattoir construction and operations, (2) the advising on veterinary supply to the United States-sponsored Chinese military forces, and (3) the providing of assistance in the procurement and transportation of Chinese Army animals. Also, a veterinary plan for evacuating and hospitalizing sick and wounded animals and for remounting the Chinese combat units was being undertaken as the war ended.

To better coordinate these veterinary and other activities with the Chinese military forces, the Services of Supply organization operated through five area commands, or base sections as they were named after April 1945. These were comparable to the territorial subdivision of the Chinese Services of Supply; in fact, during March 1945, a Veterinary Corps officer was assigned full-time duty with the headquarters of that Chinese Army organization. The latter was responsible for the local and actual procurement of most of the animals, feed and forage, animal equipment, and horseshoeing material which were required in the United States-sponsored Chinese armies and divisions, and for the full supply to the nonsponsored Chinese military forces. In these operations, the Army Veterinary Service lent assistance to the extent of formulating a quartermaster remount plan, participating in the specially formed Sino-American Horse Purchasing Bureau, recommending changes in the Chinese system for the procurement and distribution of forage, developing and starting the manufacture of compressed hay and a compressed emergency ration for animals, inaugurating equipment maintenance units, beginning the manufacture of horseshoes, and advising on changes in the administration of the Chinese Army veterinary service. The U.S. base subsections of Services of Supply, as of June 1945, were as follows: Base Section 1, with headquarters at Yün-nan-i; Base Section 2, with headquarters at K'un-ming; Base Section 3, with headquarters at Chan-i, India; Base Section 4, with headquarters at Kuei-yang; and Base Section 5, also at K'un-ming. Following V–J Day, these were discontinued as U.S. military activities were recentered in the new Shanghai Base Command. The foregoing base section headquarters staffs generally had no staff veterinarian in

their medical sections, but the veterinary personnel and various activities within each such subcommand were under the supervision of, and regularly inspected by, veterinary officers assigned to Headquarters, Services of Supply.

The theater's veterinary meat and dairy hygiene inspection services were formally started in early January 1945 when four food inspection detachments (the 84th, 85th, 86th, and 87th Veterinary Food Inspection Detachments, then called medical composite sections (food inspection)) arrived from USAFIBT. These detachments were assigned to station at Chan-i, Yün-nan-i, Lu-liang, and Cheng-tu. During the next month, the 913th, 914th, and 915th Veterinary Food Inspection Detachments were activated locally and, after their organization and orientation, set up operations initially at Pai-shih-i, Kuang-han (in the Cheng-tu area), and Pao-shan. By September 1945, 27 detachments were authorized for the theater, but 10 detachments that were to be organized by USAFIBT either were not formed because of shortages in numbers of personnel (the 945th through 950th) or had not departed for the China theater before V–J Day (the 937th, 939th, 941st, and 942d). Altogether, 11 veterinary food inspection detachments were received from or through the India-Burma theater: The 80th and 82d (during April–May 1945), the 84th, 85th, 86th, and 87th (during January–February 1945), the 917th (during August 1945), and the 938th, 940th, 943d, and 944th (during August–September 1945). Six were activated and organized locally: The 243d, 244th, and 245th (during June 1945) and the 913th, 914th, and 915th (during February 1945).

These food inspection detachments, for the most part, were stationed in the vicinity of major subsistence storage points or depots and at abattoirs, many of the latter being specially constructed by the Army (such as at Pao-shan, Sian, Nancheng, Chih-chiang, Lu-liang, Kuei-yang, Pai-shih-i, Chungking, and Luhsien).[10] The abattoirs, including those operated by the Chinese War Area Service Command organization (which provided housekeeping services to the American forces in China), were operated under the full supervision of Veterinary Corps officers to insure that the supplies of fresh beef, pork, and chicken were clean and sound. The Army Veterinary Service comprised the only inspection agency, and typically the abattoirs had no trained Chinese butcher personnel; serious difficulties were experienced with the supply of adequate potable water, the procedures for waste disposal, and the handling and distribution of the meat where refrigerated facilities were underdeveloped. As the U.S. troop strength increased, the animals to be slaughtered became more difficult to obtain, but the grade of beef was never higher than that used in the American meat canning industry; only the carcass beef was accepted because edible organs generally revealed extremely heavy parasitic infestations. In the period January through September 1945, the Army Veterinary Service inspected approximately 63,000 live cattle and hogs for slaughter and conducted post mortem

[10] In the fall of 1944, the Army Veterinary Service was supervising the operation of nine abattoirs in China, at K'un-ming, Yün-nan-i, Yang-chieh, Chan-i, and in the Cheng-tu area. Abattoirs were newly constructed and in operation in places cited in the text, and, as of V–J Day, abattoir construction was approved or started at Kaiyuan, Meng-tzu, Nan-ning, and Liu-chow.

inspection on 58,000; also, 361,000 live poultry were inspected ante mortem, and 308,000 carcasses were inspected during the slaughtering operations.

In the nonperishable (or canned) subsistence supply to the China theater, the Army Veterinary Service experienced an unusually high rate of losses. Of course, the subsistence was handled many times before arrival in the theater, and large quantities of it, long stored and now surplus to the Army in India-Burma, were received in broken containers or with the cans seriously rusted or damaged. The condition of the canned foods was not bettered when they were hauled over the Stilwell Road. This condition was not improved when subsistence stocks in Burma were loaded on airplanes without the benefit of preshipment examinations, flown over the Hump, and unloaded at destination within minutes and heaped on the airfields. Another veterinary activity at airbase and services of supply installations was the supervision of ice cream manufacture, using dried ice cream mix of U.S. origin or other raw material if the mix product was unavailable. Also, butcher shop facilities were established and specially equipped to trim and render fat into lard.

The Services of Supply, USAFCT, also cooperated with the Chinese Combat Command in the conservation of Chinese Army animal strength by administering the proper transport of animals rapidly into the vicinity of active combat areas in China. Under veterinary supervision at the loading points, along the routes of military animal traffic, and at destination, large numbers of horses and mules were moved by airplane, road marching, railroad, and truck convoy. In the first major animal movement, approximately 2,200 animals belonging to the Chinese New 6th Army (including the Chinese 14th and 22d Divisions) were redeployed by aerial transport from Burma into Chan-i. This took place during January-February 1945 and was repeated when, between 21 April and 11 May 1945, the same animals were airlifted from Chan-i to Chih-chiang—the last large American airbase which stood in the path of new Japanese advances into southern China. During June, July, and August 1945, another 3,164 horses and mules belonging to the Chinese New 1st Army and 1st Regiment were transported by airplane from Burma—this time to Nan-ning where the Chinese military forces were preparing for an offensive toward a Japanese-held port on the eastern China coast.

As these aerial movements were taking place and with the ending of the fight for Burma, approximately 3,000 animals belonging to the Chinese 30th and 22d Divisions (the latter's replacement animals only), 10th and 12th Engineer Regiments, and other units, and more than 2,400 mules and horses belonging to the two field artillery battalions and six quartermaster pack troops of the disbanding 5332d Brigade (Provisional) were roadmarched over the Stilwell route into China, over which Allied traffic had started to move in January 1945. Feeding-watering-resting bivouacs or camps, overnight stopover points, veterinary aid stations, and truck ambulances were

established along the route of march by the Services of Supply. This project proceeded satisfactorily until early August 1945 when one confirmed case of surra appeared in an American field artillery mule. This led to the testing of all animals in the marching columns. Repeated testing during that month eventually led to the outright destruction of 181 of approximately 900 animals in the field artillery units. During September 1945, repeated testing of approximately 1,500 mules and horses of the six quartermaster pack troops—mostly bivouaced along the march route—was finalized; 453 were destroyed, 307 because they were known to be infected, and the remaining 46 because their physical condition made it evident that they were particularly susceptible to infection. Altogether, 18,480 microscopic examinations were made of animal blood specimens during the 2 months. It had been determined that only surra-free Army horses and mules would be turned over to the Chinese military forces. The disease also was uncovered by Veterinary Corps liaison officers on duty with Chinese divisional units. Also, from Kun-ming, railroad shipments were made of 5,500 horses and mules belonging to the Chinese field armies, divisions, engineer regiments, and field artillery battalions that were then being utilized into the defense of southern China. At Chan-i, or the terminal end of these movements by rail, the animals were transported by truck into the combat area as a means of further conserving their efficiency. In this connection, a regular fast-moving truck convoy system was established and used at first, but the results were disastrous in terms of dead animals on the trucks at final destination. The Army Veterinary Service soon requested the abolishment of the system, also called block movement, in favor of a somewhat slower movement during daylight hours only, with stopovers en route, and each truck was to be accompanied by animal attendants.

Within the Shanghai Base Command, established on 10 September 1945, but soon lost as a separate organization entity when the China theater headquarters moved there, the Army Veterinary Service surveyed and established inspections in local commercial plants which furnished fresh beef, pork, lamb, and chicken to the Armed Forces. The Army Veterinary Service also supervised the manufacture of ice cream and reconstituted milk in a dairy plant, using Army-owned raw materials, and located refrigerated warehouses for the storage of perishable subsistence. A port veterinary service was also inaugurated. Two veterinary food inspection detachments, the 84th and the 87th, were moved into Shanghai, but the 84th was inactivated before the end of 1945. It may be noted that a Joint Army-Navy Preventive Medicine Service was created to coordinate medical operations, including the veterinary sanitary inspections of food supplies and restaurants, to safeguard the health of the large numbers of American military personnel who came into Shanghai during the immediate postwar period (*15*).

Chinese Combat Command.—The China sector of the former China-Burma-India theater's Chinese Training and Combat Command, comprising

the original Y-Force and Z-Force Operations Staffs, which now were merged, was continued within the new China theater as a major element of that theater for only a few months. In the winter of 1945, the Salween campaign for reopening the overland Burma-China route was all but ended, and in eastern China the Japanese southwardly advances had disrupted the schedule for completely training, equipping, and deploying the Z-Force. Thus, on 8 January 1945, the theater's training and liaison organization for the Chinese Army was separated into two subordinate theater commands, the training group, or Chinese Training Command, and the group on liaison duty with the Chinese field forces, designated as the Chinese Combat Command. The latter, with headquarters at K'un-ming, included a staff Veterinary Corps officer, formerly with Headquarters, Y-Force Operations Staff, who technically administered the U.S. veterinary services with the Chinese field forces. These veterinary services were conducted by personnel and units which were assigned to five territorial subcommands (each covering a China provincial area and paralleling the field organization of the Chinese Army): Eastern, Central, Southern, Kwangasi, and Reserve. Then, below the level of the five area commands within the Chinese Combat Command, there were 12 army liaison teams and 36 division liaison teams which were attached to, and moved with, the Chinese combat units. All liaison teams were authorized to include a veterinary officer, a veterinary enlisted man, and a horseshoer. As of the end of March 1945, the Army Veterinary Service with the Chinese Combat Command had 51 officers and 60 enlisted personnel (including 28 horseshoer specialists)—these being distributed among the headquarters, area commands, and liaison teams—and also, 19 veterinary animal service detachments. The latter augmented the liaison team veterinary services in the Chinese armies and divisions.

The principal objective of the veterinary liaison personnel were to assist "* * * in every way possible in improving the methods of animal management, care of sick and injured animals, supervision of packing and shoeing of all animals" in the Chinese armies and divisions. Schools of instruction were established within the units, and particular attention was paid to the development of trained and well-equipped Chinese veterinary detachments. Under this kind of supervision and instruction, the standards of animal care and management in the Chinese combat forces was greatly improved, but it must be noted that before this time there were little or no such standards practiced and that the Chinese Army Veterinary Service generally had few really well qualified personnel and was numerically inadequate. In addition to the liaison personnel and the 19 veterinary animal service detachments, the Chinese Combat Command also utilized the 19th Veterinary Evacuation Hospital and elements of the 7th Veterinary Company (Separate), as follows (*16*):

* * * The 7th Veterinary Company (Separate) was divided into three platoons which functions separately, one platoon with each division of the New 1st Army. The platoons

of this company assisted in the loading and unloading of animals on planes which were used to airlift the animals from the IB [India-Burma] Theater to the China Theater. One platoon accompanied one division (30th Div., N 1st Army) on its overland movement from Lashio, Burma to Nanning, China. They furnished the necessary care and evacuation of animals while en route. The 19th Veterinary Evacuation Hospital established eleven feed and rest stations and Veterinary Aid stations along the Burma road axis from Wanting, China to Tuhshan, China. This unit designed and supervised the building of animal racks for all truck shipments, thereby eliminating injuries that heretofore caused great loss of animals from permanent injuries, death and long periods of treatment. Further, this unit assisted in loading and unloading of all truck and plane shipments of animals; 13,580 animals were handled by the 19th Veterinary Evacuation Hospital. Due to weather conditions, lack of trucks and planes and shortage of forage in some areas, the 19th had to maintain a 24 hour schedule for handling of all air, truck and overland movements. This hospital unit furnished invaluable assistance in loading of the 6th Army animals on planes and expediting their shipment from Chanyi to Chihkiang in April 1945 to halt the advance of the Japanese Army on Chihkiang.

After V–J Day, the veterinary animal service detachments were assigned to Services of Supply and then inactivated on 16 September 1945, and the 7th Veterinary Company (Separate) and 19th Veterinary Evacuation Hospital were redeployed to the India-Burma theater for return to the United States.

Chinese Training Command.—This command, with headquarters at K'un-ming, was established on 8 January 1945, when, it must be recalled, the training group and liaison group in the China theater's Chinese Training and Combat Command were divided and two subcommand elements were formed. The training command headquarters included a staff veterinary officer who had once been assigned to Z-Force Operations Staff at Kueilin; it continued the veterinary section of the Field Artillery Training Center which had been opened originally in the spring of 1943 in connection with the training of the former X-Force Chinese armies and divisions. Formal school-type courses of training in professional animal service, and animal care and management were conducted in the center for Chinese Army veterinary personnel, as were courses for horseshoers and animal pack masters of the United States-sponsored Chinese Army; also, orientation training was given to U.S. veterinary liaison personnel prior to assignment with the Chinese field units. The Army Veterinary Service with Chinese Training Command totaled seven or eight officers. This number included the two veterinary officers who were detailed full-time duty, since mid-1944, as instructors in the Chinese Army Veterinary School at An-shun. That institution, through the office of the Chinese Ministry of War, urgently requested additional U.S. veterinary instructors, but no other Veterinary Corps officers could be spared from the number which were available in the China theater. In August 1945, however, that school's 23 recent graduates and two instructors were accepted at the Field Artillery Training Center for a 4 week's postgraduate professional course of instruction.

Army Air Forces, China Theater.—The veterinary service organization with the air forces in the China theater never exceeded two or three officers and a few enlisted personnel because the requirements for veterinary services, particularly food inspection, at the airbases were readily satisfied by service forces' assigned veterinary officers. This was mutually agreeable to the Services of Supply and Fourteenth Air Force. Actually, the bases were widely scattered, sometimes small in size, and were moved frequently so that a great many more veterinary personnel would have been needed than were available in the theater. Up to mid-1945, the theater's major air forces organization was the Fourteenth Air Force, with its own China Air Service Command to which the veterinary personnel were assigned; actually, the medical sections of the numbered air force and the air service command were merged after December 1944. Then, during mid-1945, as the Tenth Air Force arrived from the India-Burma theater, the new Headquarters, AAF, China Theater, was formed, and the Fourteenth Air Force's Air Service Command, with the assigned veterinary officers, became the theater's new air service command with headquarters at K'un-ming. Shortly after V–J Day, the air service command lost its veterinary personnel, and, on 1 December 1945, both the Fourteenth Air Force and Tenth Air Force headquarters were disbanded.

Another air forces unit in the theater was the Twentieth Air Force's XX Bomber Command, which in the spring of 1944 began to operate the very long range bombing program against the Japan mainland. During the first half of 1945, it was transferred out of the airbases in China to the Marianas Islands in the CPA; there was no organically assigned veterinary detachment with this air forces unit while in China. In the China theater, there was also an Air Transport Command wing organization to which a veterinary officer was assigned in September 1945.

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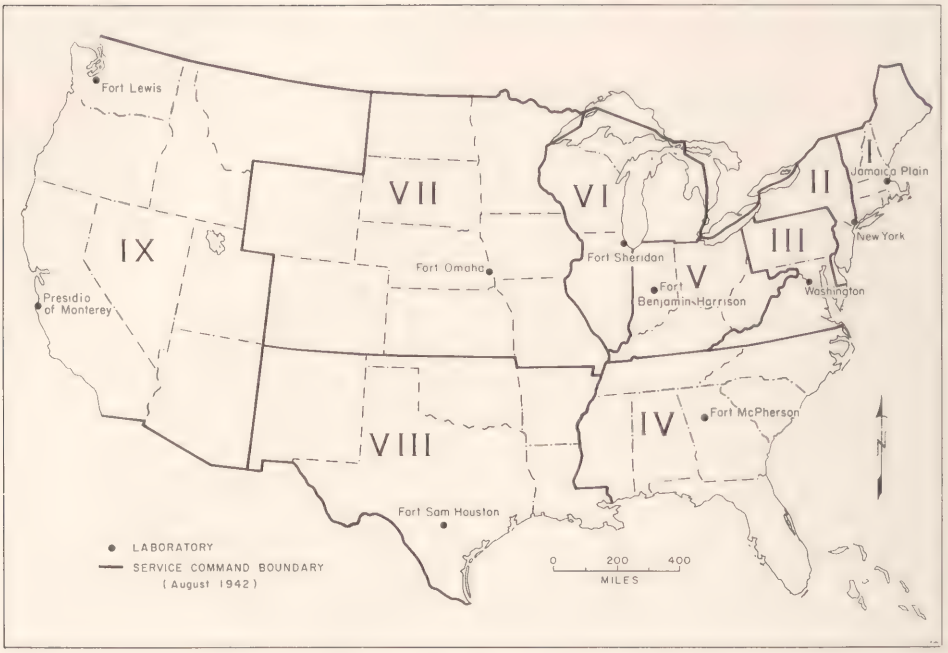
CHAPTER XI

Laboratory Service and Research

An activity of the Army Veterinary Service, paralleling its services with animals and the inspection of the Army food supply during the war, was its laboratory and research work. Basically, this was a part of the overall Medical Department laboratory system. In the Zone of Interior at the level of the Army camp or station, professional veterinary requirements for laboratory services sometimes were referred to the clinicodiagnostic laboratory of the local station hospital. Most often, however, this type of facility was neither manned nor equipped to meet the veterinary needs, so that animal specimens and food samples generally were referred directly to the service command medical laboratories or to the laboratory of the Army Veterinary School, Army Medical Center, Washington, D.C. These were manned and equipped to conduct the routine and special clinicodiagnostic examinations and food analyses for the Army Veterinary Service and were staffed by Veterinary Corps officers who were specially trained in military veterinary laboratory services. Other Medical Department laboratories in operation or nearing completion at the start of the war that had component veterinary sections were those located in the oversea departments. During the war, the theaters of operations utilized medical laboratory units. Each included a veterinary section. These laboratories operated with the field armies and in the theaters' base commands, and two or more such units in a single theater were supported by a larger medical general laboratory unit. Approximately 50 veterinary officers were assigned worldwide to this veterinary laboratory service within the Medical Department (maps 7, 8, and 9). Fifty more officers were on duty with the laboratory research and development projects of the Chemical Warfare Service, the Quartermaster Corps, the Pan American Sanitary Bureau, or were concerned with antibiological warfare studies and the civil affairs activities in liberated and occupied countries.

This situation contrasts sharply with that in World War I, when The Surgeon General in December 1917 inaugurated a laboratory service in the Veterinary Corps that was expanded to include six or seven veterinary laboratory officers (*1*). As of mid-1940, veterinary laboratories were in operation only at the Army Medical Center, at Fort Sam Houston, Tex., and at the general depot at Fort Mason, Calif. (*2*). There were also, at this time, the Medical Department Equipment Laboratory, Medical Field Service School, Carlisle Barracks, Pa., and the VRL (Veterinary Research Laboratory), Aleshire Quartermaster Remount Depot, Front Royal, Va.

By this time, the functions of the veterinary laboratory service were well defined to include clinicodiagnostic services, food analyses, production of bio-



MAP 7.—Laboratory locations in the Zone of Interior.

logicals; training and instructional services, and research and development. The first-named function or activity related to the conduct of bacteriological, serologic, and pathological examinations of animal specimens. Food analyses pertained to the chemical analysis and bacteriological examinations of foods of animal origin and forage for the purpose of determining their compliance with the provisions of contractual documents. Since 1927, reportedly, the examinations or tests of food samples to determine compliance with contractual documents and specifications constituted the principal activity of the average laboratory (*3*). In addition to these activities, the veterinary laboratory service produced certain therapeutic and diagnostic biologicals which were required by the Army. Some of this activity, such as the production of mallein used in testing horses for glanders, was an outgrowth of operations during World War I. Another activity of the laboratories was the use of their personnel in the Medical Department's training program, particularly at the Army Medical Center.

The wartime service was expanded to include, in addition to the expanding research and development program, 34 new medical laboratories and laboratory units: 9 service command laboratories in the Zone of Interior, 2 oversea departmental or service command laboratories outside of the United States, and 4 general and 19 army-type and communications zone medical laboratory units in the oversea theaters. The war's end found these labora-



MAP 8.—Laboratory locations in Europe.

tory veterinary sections to be integral and essential in the day-to-day operations of the Army Veterinary Service to a degree greater than at any previous time in its history.

PRINCIPLES AND PRACTICES

The principles and the practices of veterinary laboratory service and research in World War II, like its functions and activities, were the direct continuation of those developed in World War I and perfected in the peacetime period which followed. The document basic to the wartime veterinary laboratories was an Army regulation dated 3 August 1942. These were



Map 9.—Laboratory locations in the Pacific.

described originally by the Surgeon General's Office in circular letters and were replaced, in 1921, by an Army regulation (*4*, *5*, *6*).

At the level of the Surgeon General's Office, the veterinary laboratory service in its technical operations was supervised by the Veterinary Division and the Subdivision of Sanitation, Hygiene, and Laboratories of the Preventive Medicine Division. Frequently, matters of purely technical concern were referred to the Army Veterinary School which operated as a central control veterinary laboratory. Relations between the latter and the various laboratories were maintained by direct channels of communication. Within a command, the senior veterinary laboratory officer generally acted as the technical adviser to a command veterinarian on policies and problems relating to laboratory equipment and supplies, veterinary laboratory operations, and the control of animal diseases. In this connection, for example, the Ninth Service Command Laboratory, Fort Lewis, Wash., prepared and distributed a 14-page Veterinary Laboratory Circular pertaining to the collection, preparation, and shipment of specimens and samples. In another instance, during World War II, the 18th Medical General Laboratory conducted the preliminary work on the official form letter that was distributed by the Office of the Surgeon, Headquarters, Pacific Ocean Areas, concerning the procedures which would be used in the investigation of animal diseases on island bases in the Central Area (*7*). There was free interchange of professional and technical information between the laboratory and the veterinary officers in the field who were submitting specimens and samples for examination.

It was early realized that it was not possible to limit veterinary laboratory officers to strictly veterinary duties; the laboratories were frequently autonomous and had to do their own administration and housekeeping. In modern medicine, there is a great overlap and interrelationship among specialized fields. Thus, the problems of assignment and utilization of a veterinary laboratory officer on nonveterinary work was reevaluated in terms that he was primarily an Army officer and a member of a highly specialized professional team or staff. For example, the veterinary officer who had specialized in veterinary pathology was an invaluable associate in the experimental studies of the toxic or lethal effects of chemical warfare agents. The team or laboratory of which the veterinary officer was a part required many specialists in the several fields of medicine, bacteriology, chemistry, entomology, immunology, parasitology, public health, and virology. If qualified by previous experience or training, the veterinary officer soon found himself participating in nonveterinary work.

The veterinary section or branch of these laboratories usually did not function as an independent self-sufficient unit, as might be expected. The veterinary officer was normally in charge of the work or activities which dealt primarily with animals, animal diseases, and foods of animal origin. Moreover, he depended upon other sections of the laboratory to assist him

in his problems; that is, problems in bacteriology were frequently referred to the bacteriology section, and problems in chemistry to the laboratory's chemist, thus allowing the veterinary laboratory officer to utilize the combined skills of the entire staff in handling the veterinary work. However, the veterinary laboratory officer was usually qualified for such an assignment by his prior civilian experience and education, and by specialized laboratory training within the Military Establishment.

The central administration of the laboratory service included ways and means of developing uniformity of laboratory methods and techniques, the training of personnel, the evaluation study of laboratory efficiency, and the inspection of veterinary laboratory facilities.

Steps for standardizing the methods and techniques that were used in the various laboratories were begun early in the history of the veterinary laboratory service and were continued throughout World War II. One such action was the training publication, Technical Manual No. 8–227, Methods for Laboratory Technicians, an edition of which appeared on 17 October 1941. This was incomplete in regard to the description of food analytical procedures, a matter of utmost importance to the Army Veterinary Service in connection with the procurement inspections of foods of animal origin. This problem was answered, in part for the first time, during the immediate pre-World War II emergency periods when the Army Veterinary School prepared the mimeographed text, Methods of Chemical Analysis of Meat Food Products. At about this time, a trend became evident toward the greater use of laboratory methods and techniques which were developed or were advanced by quasi-official national organizations.

Thus, in connection with the examination of milk and other dairy products, the veterinary laboratories made reference to the American Public Health Association's Standard Methods for the Examination of Dairy Products and to the Association of Official Agricultural Chemists' Official and Tentative Methods of Analysis. These were specified in the Federal specifications and contractual documents relating to the procurement of food, and their use was mandatory. As the war progressed, the commercial food industries and related associations, including the American Oil Chemists Society, National Canners Association, American Dry Milk Institute, and the Quartermaster Corps, modified their test procedures, as did such Federal agencies as the U.S. Public Health Service and the Food and Drug Administration.

Frequently, during the war, new products were developed, and laboratory quality tests had to be developed for them. Even after a test was developed or perfected, there remained the problem of interpretation and application of the test results; for example, one could mention the *Escherichia coli* contamination in fresh milk, the mycelia count of butter, and the fluorescent value of dried egg powder. These analytical methods and procedures were important, being a part of contractual documents relating to the

procurement of many million pounds of food for the Armed Forces. Also, the details of the test, which included the naming of specific equipment, had to be followed since the food analytical work of the Army veterinary laboratory service was subjected to legal review in claims made by contractors.

Allied with the standardization of laboratory methods and procedures, announced in published manuals and bulletins, was the matter of training. During World War II, a short refresher Special Graduate Course in Clinical Pathology was organized and conducted for 42 veterinary officers, and a wartime Course for Enlisted Specialists, Veterinary Laboratory Technicians, was established and conducted for 23 veterinary enlisted personnel. These courses emphasized training in laboratory work.

In addition to the utilization of published reference texts and training media, of a central training agency, and of programs of research and development, the Army Veterinary School instituted laboratory evaluation studies as a means of obtaining standardization. Briefly, these studies involved the measurement of efficiency of several laboratories by one central laboratory (Army Veterinary School Laboratory) and involved the latter's action of sending identical food samples (controls) to subordinate or corollary laboratories for analyses and then reviewing and comparing the test results which were reported. Laboratories that failed to report satisfactory results were subsequently inspected or requested to assign their veterinary personnel to the central laboratory for on-the-job training. It was a command responsibility to conduct such evaluation studies and was little used until after the onset of World War II. During the war, the veterinary section of the Fourth Service Command Medical Laboratory, Fort McPherson, Ga., instituted evaluation studies on hospital laboratories in Army camps conducting local milk quality control programs.

Steps were taken to standardize veterinary laboratory methods and techniques within the Army Veterinary Service to insure that all veterinary laboratories would or could provide the same end results of analyses on any given food sample and also to insure that the veterinary laboratory service could be generally recognized as a competent quality-control military agency of the Government. At times, a laboratory seemed to be out of line with respect to a procedure or on a report of results of analyses, but this was no different from the experiences of the food industries with their laboratory controls. Within the Army, such failures were usually uncovered almost as soon as they appeared, and aggressive action was undertaken for the correction of the situation immediately. Complaints by the commercial food industries of inaccuracies of veterinary laboratory reports of analyses did occur; however, in no instance was a complaint substantiated.

The studies and standardization of laboratory methods and techniques involved studies and standardization of equipment and supplies. During World War II, the equipping of veterinary laboratories became a major problem. The problem was quantitative in nature because of the increased

number of veterinary laboratories. It was also qualitative, particularly in the Zone of Interior where there was a developing emphasis upon the utilization of official test procedures in connection with the expanding veterinary food inspection services. The test procedures, which were agreed to jointly by quartermaster procurement officials, the food industries and their quasi-official national organizations, and the Army Veterinary Service, frequently specified a type or brand of equipment or laboratory material which was to be used; it became mandatory that the veterinary laboratories be properly equipped or supplied to conduct the official test procedures. If such were not available or used, the results of the analyses conducted by laboratories which may have used substitute equipment or material were regarded as unacceptable within the purview of the contractual documents relating to food procurement. In an instance where a special type of electric mixer, as prescribed in the test for the solubility index of dry milk powder, was in short supply, the American Dry Milk Institute and the Quartermaster Subsistence Research and Development Laboratory cooperated to test and to make arrangements for the supply of substitute types of mixers.

The advancements which were made in laboratory test procedures and equipment were paralleled with changing attitudes toward the importance of laboratory experimental and test animals. There always existed the problem in the supply of laboratory animals in terms of quantity, but the supply of good quality and properly conditioned animals was a relatively modern innovation. It involved the supply of parasite-free animals, sometimes specific pathogen-free animals, or animals which were specially fed or grown under special environmental conditions. The lack of appreciation of quality and condition in laboratory animals in past years may have caused some of the irregularities in the results of animal test procedures in routine clinicodiagnostic work, and it may be associated with the inability at times to verify the reports of original research investigations. The developing importance of laboratory animal supply paralleled the history of the responsibilities and functions of the Army Veterinary Service with the Medical Department laboratory system. The supply of good quality animals in adequate numbers was progressively experienced as being essential to the clinicodiagnostic procedures and research investigations by the Medical Department (fig. 36).

Requests for the utilization of unserviceable Army horses in connection with the developmental studies on protective equipment against chemical warfare agents were disapproved by the War Department until 18 March 1941 (*8*). When approval was granted at that time, the War Department directed that the Chemical Warfare Service employ those criteria of the American Medical Association that concerned the humane care and use of laboratory experimental animals.

During World War II, the Army Veterinary Service was active in the care and handling of laboratory animals, not only for the Medical Depart-



FIGURE 36.--Experimental surgery on laboratory animals was conducted under humane, professional veterinary guidance in connection with the studies of missile effects on soldiers.

ment laboratory system but also in connection with the antichemical and antibiological warfare research and development programs of the Chemical Warfare Service. This was in line with the natural sequence of events and possibly as the result of the specified requirements by the War Department in 1941 that veterinary and humane treatment be accorded Army horses which were utilized in defensive chemical warfare research. On at least two separate occasions, once in 1943 and again in 1944, the Chemical Warfare Service requested the assignment of veterinary officers[1] whose duties were to assist in the interpretation of the pathological changes in experimental animals and to procure and manage animal colonies (*9, 10*). Within the Medical Department laboratory system, the veterinary sections of new medical laboratories and laboratory units in the Zone of Interior and oversea theaters invariably operated the animal colonies. The operation included procurement, breeding, maintenance, and issue, as well as the conduct of sanitary programs and professional services. Plans were developed for the proper housing of laboratory animals. These operations were especially difficult under field conditions where the laboratories were frequently relocated and in areas where climatic conditions adversely affected the maintenance and propagation of animals. At ports, the Army Veterinary Service assisted in the oversea movement of laboratory animals. Unfortunately, laboratory animals did not well withstand the rigors of long voyages on shipboard; in some instances, the animals were moved by aerial transport and were accompanied by attendants to assure that they were properly cared for en route. The procurement of an adequate food supply was a frequent problem.

SERVICE COMMAND MEDICAL DEPARTMENT LABORATORIES IN THE ZONE OF INTERIOR

This section and the following section comprise the unit histories of veterinary laboratories and sections during World War II, in the Zone of Interior and in the oversea theaters, respectively. They relate the veterinary operations of 34 newly organized or revitalized facilities and units of the Medical Department laboratory system. The war's end found the operational responsibilities of the veterinary laboratory service to be of importance equaling the two original missions of the Army Veterinary Service—the mission concerned with the care of animals and that related to the inspection of food.

In the Zone of Interior, the veterinary laboratory service was an activity of the Army Veterinary Service that was evolved within the Medical

[1] On 29 July 1944, the Veterinary Division, SGO, initiated action for the transfer of Capt. A. H. Gaffin, VC, from the 42d Veterinary Company (Separate) to the Dugway Proving Ground, Toocle, Utah, and of Capt. R. J. Veenstra, VC, from the 23d Station Hospital to the Toxicological Research Laboratory, Edgewood Arsenal, Md.

Department laboratory system. The onset of World War II found the Army Veterinary Service dependent upon three laboratories for its clinicodiagnostic work and food analyses: The Army Veterinary School, the station hospital at Fort Sam Houston, and the general depot at Fort Mason.

The laboratory at the Army Veterinary School was really the parent laboratory of all veterinary laboratories organized during World War II. Most of the veterinary officers that were assigned to other laboratories received a preassignment training course in this laboratory. It served as the control laboratory for all service command laboratories and as an appeal laboratory to arbitrate differences between service command and food industry laboratories. In addition to performing its usual research training, production of biologicals, and other functions, it provided all veterinary laboratory service for the Third Service Command. During World War II, the laboratory examined 51,950 samples of food, making 163,000 separate determinations. The production of biologicals was as follows:

Mallein	doses	1,579,350
Tuberculin	doses	537,130
Equine infectious abortion bacterin	cubic centimeters	202,260
Equine, encephalomyelitis vaccine	cubic centimeters	5,631,228
Japanese B encephalitis vaccine	cubic centimeters	1,950,335

As the pre-World War II emergency period saw the formation of hospital laboratories at many new Army camps and airbases, the Surgeon General's Office planned for the establishment of zonal-type laboratories as supplementary to the hospital laboratories—one for each of the corps areas and the oversea departments. The planning for corps area and department medical laboratories in the expanding Medical Department laboratory system became the nucleus of the wartime organization of the veterinary laboratory service, because veterinary personnel were too few in numbers for assignment to the numerous hospital laboratories. Such zonal-type laboratories were recognized as important in the investigation of diseases significant in military veterinary medicine and in the operation of quality controls over the foods procured for use by the Army.

Specifically, the Surgeon General's Office recommended that medical laboratories be established in the First, Fourth, Fifth, Sixth, Seventh, Eighth, and two in the Ninth Corps Areas and in the Panama and the Puerto Rican Departments, that the Second Corps Area laboratory which was then in operation be continued, and that the Army Medical Center provide laboratory services for the Third Corps Area (*11*, *12*, *13*). It was not believed necessary to establish departmental medical laboratories in the Hawaiian and the Philippine Departments at that time. The plan, "* * * as a part of the present program of expansion," was approved by the War Department on 30 November 1940. On 15 January 1941, this approval was supplemented by a letter directing corps area and department commanders

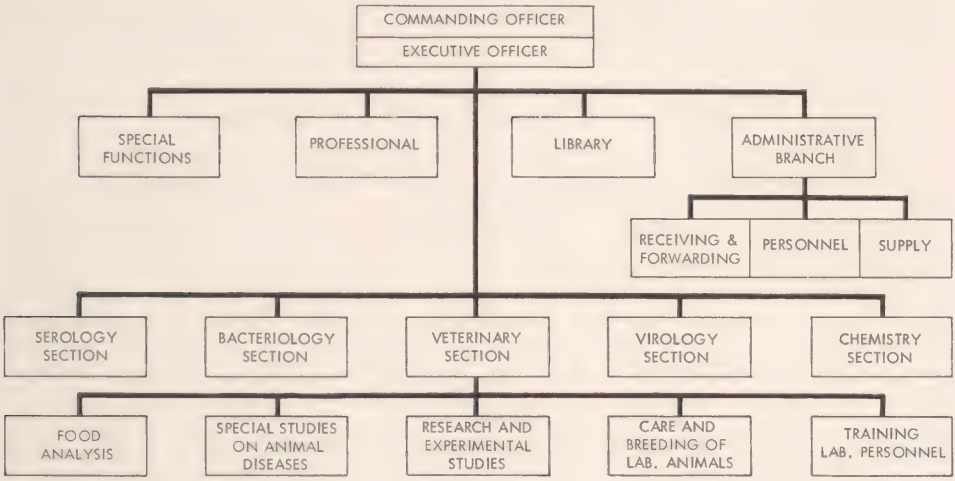
that steps would be taken immediately to establish laboratories in the following locations:

First Corps Area	Fort Devens, Mass.
Fourth Corps Area	In the vicinity of Atlanta, Ga.
Fifth Corps Area	Fort Benjamin Harrison, Ind.
Sixth Corps Area	Fort Sheridan, Ill.
Seventh Corps Area	In the vicinity of Omaha, Nebr.
Eighth Corps Area	Fort Sam Houston, Tex.
Ninth Corps Area	In the Puget Sound area, Wash. Southern California.
Panama Canal Department	In the Pacific section.
Puerto Rican Department	San Juan, Puerto Rico.

During this time, the surgeons of the relevant commands were asked to conduct preliminary studies for establishing corps area and department laboratories. Also, tables of personnel authorizations, special lists of equipment, and plans for housing the laboratories were developed. The tables of authorizations for each provided for a total of 31 personnel (5 officers, 14 enlisted personnel, and 12 civilian employees) of which number the following were named to the laboratory's veterinary component: 1 veterinary officer (in the rank of major), 1 sergeant, 1 private, and 2 civilian employees (*14*).

Veterinary personnel were assigned to the corps area medical laboratories as they were formed. In 1942, these laboratories were renamed service command medical laboratories, a name which continued until after V–J Day when they became known as Army area medical laboratories. Within the laboratories, the veterinary components were variously named as sections, food chemistry branches, or veterinary laboratory (chart 3). Most of the laboratories soon included veterinary personnel in numbers exceeding that originally planned by The Surgeon General; one laboratory had as many as 38 persons detailed to veterinary work. A total of approximately 30 Veterinary Corps officers were assigned to the nine corps area laboratories in the Zone of Interior during the war period; some of these later served in laboratory units which were deployed overseas. Any doubts as to the value of the expanding veterinary service in the new service command medical laboratories were soon put aside as the war progressed; the termination of the war found the veterinary clinicodiagnostic and food analytical services to be a major function of the Medical Department laboratory system. In the period from 1942 to the end of active hostilities in 1945, the Army Veterinary Service in the nine service commands of the Zone of Interior received an estimated 300,000 animal specimens and food samples, and several thousand water samples and specimens of human origin for examination. This is exclusive of the veterinary work conducted at the hospital laboratories in the Army camps and airbases, at quartermaster depots, at the veterinary laboratory of the Army Medical Center, or of organoleptic inspections. The annual workload per laboratory, in terms

CHART 3.—*Typical organization of a service command laboratory, showing veterinary service*



of numbers of food samples received, increased from 3,750 in 1942 to 13,600 in 1945 (up to V–J Day). For each specimen or sample received, the laboratories conducted one or more tests or determinations.

First Service Command Medical Laboratory

The First Service Command Medical Laboratory, Jamaica Plain, Mass. (*15*), was established as the First Corps Area Medical Laboratory, effective on 19 July 1941. Its veterinary personnel were originally assigned to the laboratory's serology department, but, as the result of ever-increasing demands for food analyses, these personnel in March 1943 assumed the operation of the chemistry department. In both departments, the Army Veterinary Service conducted certain clinicodiagnostic examinations concerned with human medicine. For example, during 1941, all sera received for the Kahn and Wassermann tests were surveyed for brucellosis agglutinins. In 1944, approximately 900 chemical tests were conducted on blood, spinal fluid, urine, and stool specimens of human origin. However, the analyses of food and water, the conduct of laboratory surveys of fresh milk supplies, and the operation of the laboratory animal colony comprised the major activities of the Army Veterinary Service. In regard to food analyses and testing of water, the laboratory's veterinary service in 1944 conducted 11,050 tests, of which 6,875 were chemical in nature and 4,175 were bacteriological examinations. The examinations of milk and dairy products comprised the greater part of the bacteriological work; otherwise, the analyses pertained to food of animal origin, as well as a few fruit and vegetable items, and water. Other veterinary activities at the First Service Command Laboratory included the conduct of a sanitary survey of the milkshed in Vermont and assistance to the Food and Drug Administration, Federal Security Agency,

and a survey of the supply of water and fresh milk for the Army airbase on Presque Isle. In addition, limited laboratory services were provided to local Navy installations.

Second Service Command Medical Laboratory

Veterinary service in the Second Service Command Medical Laboratory, New York, N. Y., began in the spring of 1941; it included a veterinary branch which was completely equipped to render animal clinicodiagnostic services and food analyses, the latter being its major activity. During the period from October 1941 to August 1945, the number of food samples received totaled 27,421; the number of food tests or determinations totaled 88,128. The distribution of this workload by years is shown in table 24. The food samples were representative of foods of animal origin as well as a few fruit and vegetable items. Special veterinary activities included means for the standardization of test procedures, the operation of the laboratory animal colony, and preliminary research studies on paratyphoid infection of Army signal pigeons for the purpose of developing a suitable prophylactic serum.

TABLE 24.—*Food samples received and determinations made, Veterinary Section, Second Service Command Medical Laboratory, 1941–45*

Year	Food samples	Determinations
	Number	*Number*
1941	821	1, 460
1942	6, 087	17, 645
1943	6, 720	26, 980
1944	7, 063	24, 098
1945	6, 730	17, 945
Total	27, 421	88, 128

Fourth Service Command Medical Laboratory

The Fourth Service Command Medical Laboratory, Fort McPherson, organized on 21 October 1941, included the Fourth Service Command Veterinary Laboratory. Its veterinary strength increased from 1 veterinary officer and 1 enlisted man to 21 personnel as of early 1945—the latter including 3 officers, 4 enlisted technicians, 9 civilian technicians, 1 animal attendant, 2 stenographers, and 2 housekeepers. During World War II, the laboratory's veterinary service received 23,769 food samples and 827 animal specimens (table 25). The food analytical activities pertained largely to the examination of dairy products which were supplied locally to troops, although after the spring of 1944, as many as 500 samples of canned meats were received each month for determining compliance with military procurement require-

ments. Overall, 22 percent of the food samples failed in one or more particulars to comply with the provisions of contractual documents and specifications. This percentage was significant in that defective food supplies which might prove injurious to troop health or which may have greatly deteriorated or spoiled while in Government storage were eliminated. In connection with the examinations of animal specimens, investigational studies were conducted on three diseases: equine encephalomyelitis, botulism or forage poisoning, and rabies. The first-named disease was tentatively diagnosed among animals in Florida and Georgia, but studies by the laboratory failed to demonstrate the presence of the causative viral agent. Botulism was clinically suspected in 129 animals at Fort Oglethorpe, Ga., but laboratory studies were inconclusive and only suggestive that the condition could have been a toxemia caused by spoiled forage. Rabies was a major clinicodiagnostic problem: of 65 specimens from animals suspected of being rabid, 24 were positive by the mouse inoculation test. Research studies also were undertaken for improving laboratory methods used in the determinations of added neutralizer in high acid milk and of added raw milk in pasteurized milk. Technical papers were prepared on the subjects of a container for refrigerating milk samples, and mechanical aids for use in the direct microscopic method of counting bacteria. Possibly, one of the most important activities of the laboratory's veterinary service was its operations as a central control laboratory for the food analyses which were conducted in hospitals of Army camps and airbases in the Fourth Service Command. This involved a program of training laboratory technicians from the hospitals, particularly in the methods of examining milk and dairy products. Eighty-three students in 1943 and thirty-seven additional students in 1944 were ordered to the laboratory for a 2-week training program. The program of training was augmented by a program of continued professional assistance involving the publication of a series of technical letters and the conduct of evaluation studies on the efficiency of hospital laboratories to analyze control dairy samples.

TABLE 25.—*Food samples and animal specimens received, Veterinary Section, Fourth Service Command Medical Laboratory, 21 October 1941 through 31 September 1945*

Year	Food samples	Animal specimens
	Number	*Number*
1941 (21 Oct.–31 Dec.)	243	4
1942	3, 691	7
1943	4, 936	23
1944	7, 480	569
1945 (1 Jan.–31 Sept.)	7, 419	224
Total	23, 769	827

Fifth Service Command Medical Laboratory

The Fifth Service Command Laboratory, Fort Benjamin Harrison, Ind., activated on 15 September 1941, was completed for operations on 2 December 1941. During World War II, the veterinary section conducted 111,715 tests on 38,986 food samples and animal specimens (table 26). During 1943, the laboratory confirmed the report of a clinical diagnosis of glanders in an animal at the U.S. Naval Ordnance Depot in southern Indiana. The veterinary section also operated the laboratory's animal colony, conducted animal inoculation tests, and produced some essential serological products. However, the analyses of foods comprised the principal veterinary activity that reached a peak workload during the month of June 1945, when 2,400 food samples were received and 5,600 analytical procedures were conducted. The food samples received in the greatest number were those of canned evaporated milk and canned meats and vegetables, along with a large number of samples of butter, cheese, and lard. Food samples which did not comply with the provisions of contractual documents and procurement specifications included canned evaporated milk which was low in total solids content, pork and ground beef with excessive fat, milk and frozen eggs which showed *Esch. coli* contamination, and cheese having excessive moisture. Foodborne outbreaks also were studied. Research and developmental studies were conducted on a variety of analytical tests. For example, it was found that the copper-reduction test procedure commonly used in the separate determination of the lactose and the sucrose contents of ice cream was unsuitable where syrup, instead of sugar, was used in the manufacture of the ice cream. In another instance, the laboratory reportedly found that the official test methods for starch in meat products were not sufficiently accurate. In connection with the test for added cereals, particularly soybean flour in meat products, the laboratory studied the original chemical test for glycinin (a globulin protein in the soybean) and developed an improvement to the serological test for soybean additives (*16*).

TABLE 26.—*Tests conducted on food samples and animal specimens, Veterinary Section, Fifth Service Command Medical Laboratory, 1942–45*

Year	Samples and animal specimens received	Laboratory procedures or determinations
	Number	*Number*
1942	2, 460	7, 550
1943	7, 496	24, 345
1944	14, 887	45, 258
1945	14, 143	34, 562
Total	38, 986	111, 715

Sixth Service Command Medical Laboratory

The Sixth Service Command Medical Laboratory, Fort Sheridan, Ill., established on 4 February 1941, included a veterinary section which, in time, was expanded to include a staff of 38 (*17*). When the parent unit transferred to Gardiner General Hospital, Chicago, Ill. (during November 1944), the laboratory's Food Chemistry Section, that is, the Veterinary Section, remained at Fort Sheridan. Its principal activity was the chemical and bacteriological examination of foods. The veterinary officer in charge also supervised the laboratory's serology and media sections, operated the animal colony, and conducted bacteriological examinations of water samples. During World War II, this laboratory received more than 66,000 food and water samples (table 27). In 1944, the 29,141 food samples involved the conduction of 120,300 laboratory test procedures. The peak monthly workload was reach in July 1944 when approximately 4,000 samples were received. During the war, the laboratory, located in the Nation's dairy center, was involved in the analysis of the large quantities of canned evaporated milk, dried powdered milk, and cheese which were procured for the Armed Forces. Individually, these commodities presented specific veterinary laboratory problems. In the instance of the milk products, the problem involved one of rapid reporting of results because they were frequently accepted provisionally and shipped from the contractors' establishment to depots and ports before the laboratory analysis could be completed. In June 1944, the laboratory began the testing for trace metals (copper and iron) in milk. In the instance of cheese, the problem involved one of establishing the Sixth Service Command Medical Laboratory for the check control on certain commercial cheese laboratories. Research studies were conducted on the deterioration of cheese that occurred as the result of an oiling-off condition and moisture loss. Other food items requiring considerable study and entailing a large amount of work were dried egg powder and frozen eggs, until March 1945 when laboratory work relative to all Army procurements of dried egg powder was centralized in the Seventh Service Command Medical Laboratory.

TABLE 27.—*Water and food samples received by Veterinary Section, Sixth Service Command Medical Laboratory, 1942 through August 1945*

Year	Water samples	Evaporated milk	Food samples
	Number	*Number*	*Number*
1942	2, 295	7	1, 067
1943	1, 616	4, 547	2, 577
1944	Unknown	13, 969	15, 172
1945 (through August)	171	11, 957	12, 791
Total	4, 082	30, 480	31, 607

Seventh Service Command Medical Laboratory

The Seventh Service Command Medical Laboratory, Fort Omaha, Nebr., was established on 5 November 1941, with a veterinary department which at one time included 17 personnel (*18*). During World War II, the latter department was concerned principally with the analyses of foods, receiving 56,885 food samples on which more than 490,000 laboratory procedures were conducted (table 28). In regard to the food analyses, the Veterinary Department of this laboratory conducted research studies for improving the laboratory methods for the bacteriological examination of cereals, flour, powdered milk, and frozen and powdered eggs. The studies on egg products were undertaken when the laboratory's veterinary officer was named to a committee at the Chicago Quartermaster Depot which sought improvement in determining the bacteriological quality of powdered eggs. The results of these studies were integrated into the U.S. military procurement specifications, and in 1945, the Seventh Service Command Medical Laboratory was named as the Army's central control laboratory for the analyses of all powdered eggs procured in the Zone of Interior. The Veterinary Department was also in charge of the animal colony.

TABLE 28.—*Food samples received and determinations made, Seventh Service Command Medical Laboratory, October 1942 through September 1945*

Year	Food samples	Determinations
	Number	*Number*
1942 (October through December)	3, 381	
1943	7, 780	42, 257
1944	22, 253	170, 690
1945 (January through September)	23, 471	279, 244
Total	56, 885	492, 191

Eighth Service Command Medical Laboratory

The Eighth Service Command Medical Laboratory, Fort Sam Houston, Tex., established on 15 March 1941, included a food analyses branch and a virus laboratory, both of which were supervised and operated by veterinary personnel. In regard to food analyses, the veterinary branch was divided into two operational sections whose workloads are shown in table 29. A major portion of these workloads was related to sanitary surveys of local milk supplies which were being procured by the Army. Research studies were initiated with regard to the mycological and bacteriological quality of egg products. The operation of the virus laboratory involved certain clinicodiagnostic laboratory procedures (table 30). The virus laboratory was mainly concerned with the study of the troop health aspects of such

diseases as typhus, Rocky Mountain spotted fever, lymphogranuloma venereum, lymphocytic choriomeningitis, rabies, ornithosis, equine encephalomyelitis, and St. Louis encephalitis. Laboratory research projects on rickettsial diseases also were undertaken (*19* through *23*).

TABLE 29.—*Food analyses conducted by Veterinary Section, Eighth Service Command Medical Laboratory, 1942–45*

Year	Determinations		Samples
	Food Bacteriology Section	Food Chemistry Section	
	Number	*Number*	*Number*
1942			1, 921
1943	7, 167	8, 890	8, 888
1944	11, 157	19, 415	6, 127
1945	13, 969	13, 575	Unknown
Total	32, 293	41, 880	16, 936

TABLE 30.—*Clinicodiagnostic laboratory procedures, Veterinary Section, Eighth Service Command Medical Laboratory, 1943–45*

Year	Clinical pathology		Serology		Animal inoculations	
	Specimens	Determinations	Specimens	Determinations	Specimens	Determinations
	Number	*Number*	*Number*	*Number*	*Number*	*Number*
1943		409		2, 707		1, 625
1944	524	2, 225	2, 841	5, 488	6, 991	6, 627
1945	1, 098	1, 440	10, 081	11, 396	8, 354	9, 159
Total	1, 622	4, 074	12, 922	19, 591	15, 345	17, 411

Ninth Service Command Medical Laboratory

The Ninth Service Command Medical Laboratory, Presidio of Monterey, Calif., one of two laboratories established in the Ninth Service Command, was established during June 1941, originally at Fort Ord, Calif., and then moved during January 1942. Its veterinary section was gradually expanded from a staff comprising 1 veterinary officer, 2 enlisted personnel, and 2 civilian employees to a total of 10 personnel. During June 1945, a Sanitary Corps officer was designated in charge of the veterinary section's food analysis branch. This branch conducted the analyses and examinations of all food and water samples received in this laboratory during World War II (table 31). The veterinary section also conducted a few clinicodiagnostic examinations pertaining to animal diseases and operated the labora-



FIGURE 37.—Animal house, Veterinary Section, showing guinea pig housing at the Ninth Service Command Medical Laboratory, Presidio of Monterey, Calif.

tory animal colony (figs. 37 and 38). In addition to these routine laboratory activities, research studies were conducted on the method of diagnosing canine filariasis in Army dogs, and a sanitary survey was made on the incidence of salmonellosis among Army and civilian dogs. Other studies were made on the technique of collecting gases from "sweller" cans of food, on the causes of curdled evaporated milk, and on the efficacy of the Babcock fat test in samples of homogenized milk to which formalin had been added as a preservative.

The Ninth Service Command Medical Laboratory, Fort Lewis, Wash., was the other laboratory facility in the Ninth Service Command. As of 1 July 1942, it included a veterinary section with as many as nine personnel at times; all were employed in the analyses of foods, water examinations, veterinary clinicodiagnostic services, and research investigations. The latter included the bacteriological survey of five dairy plants in the area and the investigation of an outbreak of paratyphoid infection among Army signal pigeons. During the period from 1942 through 1943, the laboratory's veteri-



FIGURE 38.—Animal house, stockroom, Veterinary Section, Ninth Service Command Medical Laboratory, Presidio of Monterey, Calif., showing mice, cotton rats, hamsters, and rats.

TABLE 31.—*Analyses and examinations of food and water received, Veterinary Section, Ninth Service Command Medical Laboratory, Presidio of Monterey, Calif., 1942–43*

Year	Samples and specimens received		Laboratory procedures
	Total	Food samples	
		Percent	*Number*
1942	1, 108	84	----------
1943	2, 781	73	----------
1944	[1] 5, 619	100	[1] 26, 806
Total	9, 508	----------	26, 806

[1] Food samples only.



FIGURE 39.—Animal house, Ninth Service Command Medical Laboratory, Fort Lewis, Wash. All of the noninfected animals and breeding stock were under the supervision of a veterinarian responsible for the handling, housing, feeding, and breeding of white rats, white mice, cotton rats, hamsters, guinea pigs, rabbits, chickens, and sheep.

nary section received more than 18,000 samples and specimens, a workload that required 32,263 laboratory procedures:

Year	*Samples and specimens*
1942	8,179
1943	5,874
1944	4,042
Total	18,095

In addition to these activities, the veterinary section operated the laboratory animal colony (figs. 39 and 40) and conducted animal inoculation tests.

OVERSEA THEATER VETERINARY LABORATORY SERVICE

During World War II, a veterinary laboratory service was organized and operated at a theater level for the first time in military veterinary history. (During World War I, only a single veterinary hospital laboratory was formed.) This service was provided in 4 medical general laboratory units and in 19 field army-type and communications zone medical labora-



FIGURE 40.—Guinea pig room, animal house, Ninth Service Command Medical Laboratory, Fort Lewis, Wash.

tory units. At times, in some oversea areas, the Army Veterinary Service also utilized or assisted in the operation of military department laboratories, Army hospital laboratories, and civilian facilities. As was explained previously in connection with the organization of the Medical Department's laboratory system in the Zone of Interior, the clinicodiagnostic laboratories in the oversea hospital units constituted the base, the army-type, and communications zone medical laboratories and supplemented the basic hospital laboratories. Within the theater of operations, the medical general laboratory became the control laboratory, operating somewhat as the Army Medical Center laboratory did in the United States.

The Field Army and Communications Zone Laboratory

The army-type or communications zone medical laboratory was described in the T/O's (War Department tables of organization) which were published from time to time during the peacetime period between World Wars I and II, but no provisions had been made for an organic veterinary service until 1 October 1940, when a new edition of the tables was published. Since then, these organizational tables have been changed several times; those changes relating to authorizations for assigned veterinary personnel are shown in table 32.

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TABLE 32.—*Tables of organization for veterinary personnel assigned to medical laboratories, 1 October 1940 through 18 January 1945*

Table	Title	Date	Veterinary personnel		Total strength
			Officer [1]	Enlisted	
			Number	*Number*	
T/O 8–234	Medical Laboratory Army or Communications Zone.	1 Oct. 1940	1	3	56
T/O 8–611	do	1 Apr. 1942	1	3	62
T/O&E 8–611	Medical Laboratory	25 Aug. 1943	1	4	58
T/O&E 8–500	Medical Department Service Organization.	23 Apr. 1944	1	2	55
T/O&E 8–500	Medical Service Organization	18 Jan. 1945	1	3	53

[1] In the rank of major.

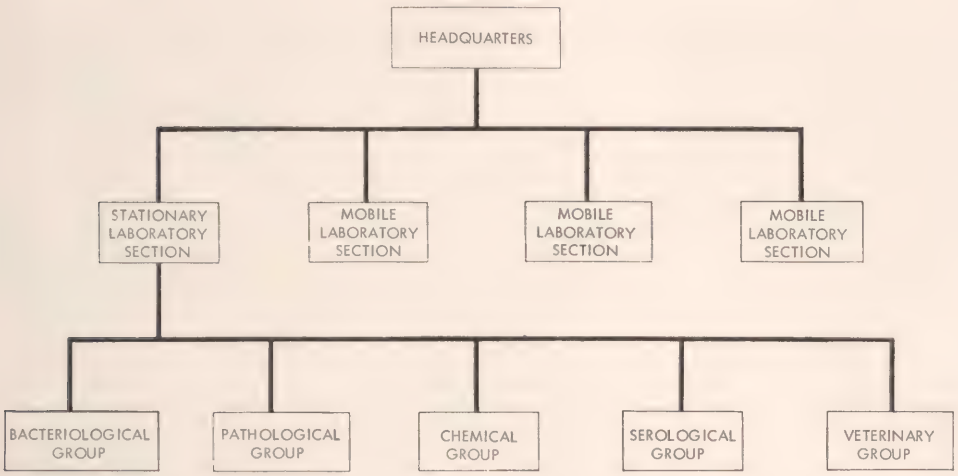
During World War II, the 19 such units were activated and deployed overseas. They were organized as self-contained units, being composed of a headquarters, three mobile laboratories, and the base stationary laboratory (chart 4). The headquarters and base laboratory, upon which the three mobile sections were satellited, was composed of several professional sections such as bacteriological, pathological, serologic, and veterinary. These conducted epidemiological investigations, sanitary surveys, and studies with the necessary laboratory work. Usually, one such medical laboratory was assigned to a field army or to a major command element in the communications zone, there implementing that portion of the Medical Department's laboratory system contained in the various hospital units. Although organized to provide three mobile laboratories, a few of these laboratory units were permanently located in an area for long periods of time, while others operated as the general medical laboratory for a theater.

The veterinary personnel of the medical laboratory routinely operated the veterinary section of the unit's base stationary laboratory. Its special functions were described as follows (*24*):

> This section is commanded by a Veterinary Corps officer assisted by enlisted technicians. It is charged with the laboratory examination of foods, animal cultures, including bacteriology of food specimens sent in from other organizations of the army or communications zone.

However, this did not preclude the utilization of veterinary personnel in any of the mobile laboratories when special veterinary investigations or surveys had to be conducted in areas not readily accessible to the base stationary laboratory. Under emergency conditions, the veterinary personnel were engaged in special laboratory work that was not veterinary in nature, and, at other times, especially when the unit was more or less in permanent station, the activities of the veterinary laboratory service were greater than the normal operating capacity of its veterinary facilities and personnel permitted.

CHART 4.—*Functional organization of the army-type or communications zone medical laboratory*



The veterinary section of the medical laboratory comprised the basic, and sometimes the only, veterinary laboratory service available in a command or a theater.

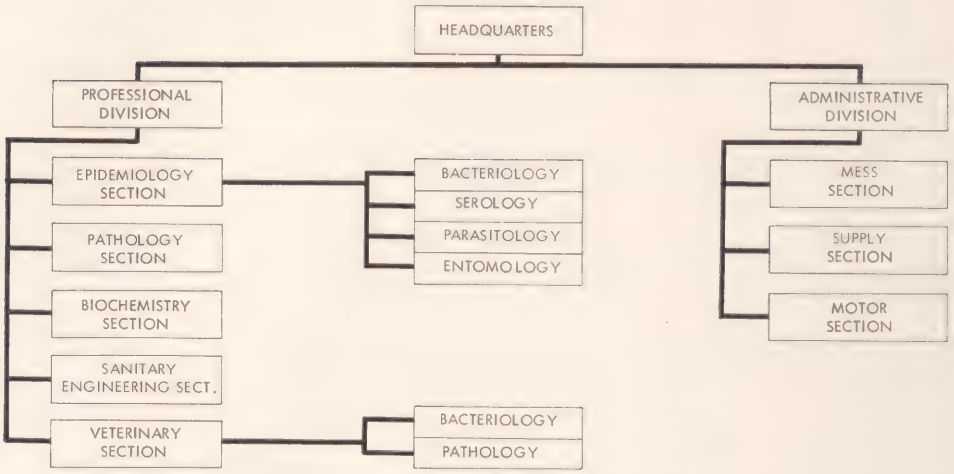
The first of these units, the 2d Medical Laboratory, was activated on 1 September 1940, and was followed on 10 February 1941, by the activation of the 3d Medical Laboratory. A cadre of the latter unit was on shipboard en route to the Philippine Department at the time of the Japanese attack on Pearl Harbor. It was recalled and embarked for Brisbane, Australia, in May 1942. During 1942, eight more medical laboratories were activated and organized—thus making available the 1st through the 10th Medical Laboratories. Some of these were activated at Camp Rucker, Ala., although the majority were activated at Fort Sam Houston. All were provided with technical training. While within the jurisdiction of the Third U.S. Army, many of these laboratories entered into field maneuver training either in Louisiana or at San Bernardino, Calif.

Beginning in December 1943 and continuing until February 1945, eight additional numbered medical laboratories were activated in the Zone of Interior, at Camp Ellis, Ill., Fort Lewis, or Camp Barkeley, Tex. The nineteenth unit was activated in the Central Pacific Area. Unlike the others, the last few units were hastily organized and were not given extensive training. In fact, one medical laboratory was en route to the port of embarkation within 10 days following its activation.

The Medical General Laboratory

The medical general laboratory of a theater of operations was designed to be the central control laboratory of the theater's Medical Department

CHART 5.—*Functional organization of a medical general laboratory*



laboratory system, which may have included one or more army or communications zone medical laboratories and the various hospital laboratories. During World War II, four medical general laboratories were organized and deployed in the oversea theaters. Typically, each included the headquarters and administrative division, and a group of professional sections (chart 5). Ordinarily, one such unit was assigned to a theater; its general functions were described as follows (*25*):

* * * It conducts epidemiological studies, researches, technical inspections, and investigations. Specially trained individuals are sent to various parts of the theater of operations to make epidemiological investigations or assist in the control of an epidemic of serious nature or proportions. The laboratory manufactures and standardizes sera, standard chemical solutions, bacterial antigens, stains, biologicals, etc. It distributes pertinent technical literature on disease control and laboratory methods. It standardizes all technique for all laboratory service (hospital and medical laboratory) in the theater of operations.

Table 33 shows the number of assigned veterinary personnel compared to total personnel. Ordinarily, the veterinary personnel comprised the veterinary section of the laboratory's professional division, but they could also be detailed to augment other sections, as required or dependent upon the qualifications of the individuals. The special functions of the veterinary sections were described as follows (*26*):

This section is commanded by a Veterinary Corps officer assisted by another veterinary officer, a noncommissioned officer, and enlisted technicians. It is divided into two subsections.

1. *Bacteriology subsection.* This subsection is charged with isolation of bacteria in specimens (meat, milk, food, cultures, etc., from sick or wounded animals) sent in by other organizations in the theater.

2. *Pathology subsection.* This subsection is charged with giving technical recommendations on meat inspection, acting as consultant on such matters, and the examination of specimens sent in by other organizations in the theater.

TABLE 33.—*Tables of organization for veterinary personnel, medical laboratories, compared to total personnel strength*

Table	Date	Veterinary personnel		Total strength
		Officer [1]	Enlisted	
		Number	*Number*	*Number*
Table 680W	23 Feb. 1927	[2] 4	12	125
T/O 8–504	1 Nov. 1940	2	6	124
T/O 8–610	1 Apr. 1942	2	2	127
T/O&E 8–610	6 June 1943	2	[3] 4	99
T/O&E 8–500	23 Apr. 1944	2	[3] 4	94
T/O&E 8–500	18 Jan. 1945	2	4	92

[1] T/O 8–504 and succeeding tables authorized veterinary officer personnel in the grades of 1 lieutenant colonel and 1 captain or first lieutenant.

[2] In grades as follows: 1 lieutenant colonel, 1 major, 1 first lieutenant, and 1 second lieutenant.

[3] Indicated as minimal number.

The four medical general laboratories, each with organic veterinary sections, were organized in the Zone of Interior. The 1st Medical General Laboratory, which was deployed in the European theater, was organized at Camp Rucker, Ala., on 25 June 1942. The 15th Medical General Laboratory, which set up station in the North African-Mediterranean theater, and the 18th Medical General Laboratory, which was deployed to the Central Pacific Area, were activated at Fort Sam Houston, on 19 December 1942, and 10 September 1943, respectively. The 19th Medical General Laboratory, which served in Hollandia, New Guinea, and then in the Philippine Islands, was organized at Fort McPherson, on 5 October 1943. With the exception of the last-named unit which was trained at Fort McPherson, the medical general laboratories received from 7 to 9 months of technical and unit training at Fort Sam Houston prior to staging at a port of embarkation for shipment overseas. The Veterinary Corps officers assigned to the units were trained at the Army Veterinary School.

Deployment of Laboratory Units in the Theaters

North African-Mediterranean theater.—Four laboratory units were deployed in the North African-Mediterranean theater. The 2d Medical Laboratory, arriving there during December 1942, set up station in Casablanca, French Morocco, as the communications zone laboratory for the Atlantic Base Section. The 1st Medical Laboratory, arriving during March 1943 as the campaign in North Africa came to a close, operated for the Eastern Base Section from its location in Constantine, Tunisia, and the 4th Medical Labo-

ratory, coming into the theater in April 1943, was located in Oran, Algeria, which then comprised the Mediterranean Base Section. During the latter part of 1943, the 15th Medical General Laboratory arrived from the Zone of Interior, but it did not become operational as the central and control facility of the theater's medical laboratory system until 10 January 1944, when it was transferred from North Africa to the Naples, Italy, area. The three medical laboratories, as was the general laboratory, were also moved out of North Africa, the 2d Medical Laboratory becoming operational as a Fifth U.S. Army unit in the campaign on the Italian peninsula. The 1st and the 4th Medical Laboratories, being assigned to the Seventh U.S. Army after the defeat of the German *Afrika Korps* and rollup of the North African base section, were subsequently moved to southern France, which area was soon assigned under the jurisdictional control of the European theater (20 November 1944). The 2d Medical General Laboratory accompanied the advances of the Fifth U.S. Army northward through Italy, eventually reaching Florence where it operated for a 3-month period ending on 3 June 1945, when preparations were started in its planned redeployment to the Pacific theater.

European theater.—The Medical Department laboratory system in the European theater was started with the advance cadre, or General Medical Laboratory "A" of the 1st Medical General Laboratory, joined later by seven medical laboratories, two operating in the communications zone, and five with the field armies. The 1st Medical General Laboratory was the central and control laboratory for the theater. Originally located in England, it was replaced in March 1945 by the 361st Medical Composite Detachment (Laboratory) during the move to Paris, France, and then by the 4th Medical Laboratory when preparations were started for its return from Paris to the Zone of Interior (during June 1945). The 361st Medical Composite Detachment (Laboratory) and the 4th Medical Laboratory both operated as communications zone laboratories. After V–E Day, the first-named unit, then located in the United Kingdom Base command, was inactivated, and the 4th Medical Laboratory moved from location in the Seine section command in France to Darmstadt, Germany, where it became one of two such laboratories of the U.S. Occupation Forces in Germany; the other was the 7th Medical Laboratory, this laboratory having served in an outstanding manner with the Third U.S. Army during combat in the European theater.

In regard to those medical laboratories with the combat forces, the 1st Medical Laboratory with the Seventh U.S. Army (originally from the North African-Mediterranean theater), the 7th Medical Laboratory with the Third U.S. Army, and the 10th Medical Laboratory with the First and Ninth U.S. Armies moved rapidly, sometimes setting up station at two or three new areas within a 30-day period and frequently rendering laboratory service in more than one area. The 1st and the 10th Medical Laboratories used their organic transportation facilities as shuttle service to move equipment and personnel, whereas the 7th Medical Laboratory was divided into two separate

sections which leapfrogged from one place to another. The 28th Medical Laboratory and the 362d Medical Composite Detachment (Laboratory), both assigned to the Fifteenth and Ninth U.S. Armies, were moved less often than the other three units deployed with the armies because they did not arrive until near the completion of the campaigns through northwest Europe into Germany. Following V–E Day, some few of the units were prepared for deployment to the Pacific theaters, but only one, the 28th Medical Laboratory, arrived there. Of the five units which served with the combat armies, only the 7th Medical Laboratory, as noted previously, was retained in operation as part of the U.S. Occupation Forces in Germany.

Central and South Pacific Areas.—The laboratory system in these areas originated in the Hawaiian Department which, during January 1942, established the Hawaiian Department Laboratory, Honolulu, T.H.; this was renamed the Central Pacific Area Laboratory on 10 November 1943. On 8 July 1944, the laboratory was disbanded to form the newly activated 14th Medical Laboratory which serviced the Central Pacific Area until relieved by the 18th Medical General Laboratory on Oahu, T.H., which arrived from the Zone of Interior on 17 August 1944 (including the veterinary branch). Subsequently, the 14th Medical Laboratory was deployed to the Ryukyus (Okinawa and Ie Shima), and on 19 September 1945, embarked for Korea. The 18th Medical General Laboratory provided the central veterinary laboratory service for the Central Pacific Areas. Other laboratories included not only the 14th Medical Laboratory but also the 6th Medical Laboratory which, having arrived on Guadalcanal on 16 February 1944, rendered veterinary laboratory service to the troops scattered on New Zealand, New Caledonia, Guadalcanal, Fiji, Espiritu Santo, Russell Islands, and other island bases in the South Pacific Area, and the 12th Medical Laboratory which, having arrived on Saipan on 8 May 1945, rendered laboratory service to troops in the Marianas Islands group.

Southwest Pacific Area.—The 3d Medical Laboratory (including assigned veterinary laboratory officers and technicians) was the first laboratory unit to be deployed in the SWPA (Southwest Pacific Area), having arrived in Australia on 18 June 1942. It rendered theaterwide laboratory service and detached mobile units and advance sections into New Guinea before the arrival of the 5th Medical Laboratory (on 13 July 1943). This unit relieved the 3d Medical Laboratory in some areas in Australia and New Guinea and covered also the Admiralty Islands and New Britain. The 5th Medical Laboratory eventually was consolidated at Finschhafen, New Guinea (on 13 April 1945). The 8th Medical Laboratory arrived in Australia on 15 August 1943, and, after a diversified deployment of its mobile sections to Brisbane and Townsville in Australia and to Port Moresby and Milne Bay on New Guinea, it was consolidated on Biak Island in October 1944. Following the initial landings by U.S. forces in strength on Leyte on 20 October 1944 and the successful occupation of the Philippine Islands, the laboratory services

in the SWPA then included the 3d, 5th, and 8th Medical Laboratories; these and the 19th Medical General Laboratory were transferred to the West Pacific Area. They were augmented later by the newly arrived 26th and 27th Medical Laboratories and the 363d Medical Composite Detachment (Laboratory). These laboratory units usually did not function as a composite unit but were deployed as small detachments or advanced mobile sections to two or more island bases which required laboratory services. Lines of communication and means of travel between these bases were rendered especially difficult by large distances measured by sea miles, so that the laboratory sections frequently acted in the capacity of a medical laboratory. Laboratory services were established during the early phases of operations in the Philippine Islands; the detachment of the 19th Medical General Laboratory, which landed on Leyte on D-day, was joined by the 27th Medical Laboratory on 12 November 1944, the latter setting up station at Tacloban. Subsequently, the Advance Section of the 3d Medical Laboratory and the 363d Medical Composite Detachment (Laboratory) operated on Leyte. When the U.S. forces bypassed the major concentration of the Japanese to invade Luzon, the 26th Medical Laboratory arrived at Lingayen Gulf 12 days after the date of the invasion (9 January 1945). It was the only laboratory unit on Luzon for the succeeding 6-month period, although this island operation saw the largest U.S. force yet employed in the Pacific. The 363d Medical Composite Detachment (Laboratory) opened station on Luzon on 1 June 1945.

China-Burma-India theater.—The 9th and 29th Medical Laboratories were the only such units deployed in the China-Burma-India theater. The first-named laboratory arrived in the theater during February 1944 and established station in Chabua, Assam. The 29th Medical Laboratory, arriving May 1945, was divided into two sections for operations in New Delhi and Calcutta, India; after V–J Day, the latter was designated also to assume the responsibilities of the 9th Medical Laboratory.

1st Medical General Laboratory.—The central control laboratory for the Medical Department laboratory system in the European theater was the 1st Medical General Laboratory; its advanced cadre, named the Medical General Laboratory "A," originally established operations (in mid-1943) at the American Red Cross Harvard Field Hospital in southern England. On 14 August 1944, a detachment of the laboratory was temporarily detailed to Paris, where laboratory services were set up; this arrangement continued until November 1944 when it was relieved by the 361st Medical Composite Detachment (Laboratory). The advance detachment in Paris included a veterinary food analysis and chemistry section composed of an officer and an enlisted man. During March 1945, the remainder of the 1st General Laboratory was transferred from its station in England, being replaced by the 361st Medical Composite Detachment, and relocated in Paris. Following V–E Day, the unit was alerted for redeployment, and, as of 1 June 1945, its theater responsibilities were transferred to the 4th Medical Laboratory. On 29 July



FIGURE 41.—Veterinary food analysis in the 1st Medical General Laboratory, Salisbury, England, in the fall of 1944.

1945, the 1st Medical General Laboratory was returned to the United States.

During the period of deployment in the European theater, the veterinary section of this laboratory (fig. 41) conducted 5,426 analytical and clinicodiagnostic examinations on 2,847 food samples and specimens as shown in table 34. Special projects included the investigation of outbreaks of foodborne diseases in troops; studies on suspected psittacosis and pigeonosis, a disease of undetermined viral origin in Army signal pigeons; the determination of the suitability of nonperishable (or canned) foods which had been frozen; the investigation of the bacterial flora of dried egg products; studies on other foods such as cheese which was infected with mites; and the bacterial contamination (*Proteus* sp. or *Staphylococcus albus*) of canned pork sausage.

15th Medical General Laboratory.—The 15th Medical General Laboratory, arriving at Oran from the Zone of Interior during the fall of 1943, was soon transshipped to the Naples area where it opened as the central control laboratory for the Medical Department laboratory system in the North African-Mediterranean theater. Its organic veterinary section conducted chemical analyses and bacteriological examinations of foods, water, and locally procured beverages. It supervised the operations of the laboratory animal colony. Special studies were made of piroplasmosis and epizootic lymphan-

TABLE 34.—*Examinations conducted by the Veterinary Section, 1st Medical General Laboratory, 3 June 1943 through 5 June 1945*

Examinations	3 June–31 Dec. 1943	1944	1 Jan.–5 June 1945
Specimens and food samples	701	1, 890	246
Nature of determinations:			
Animal inoculations	18	38	
Bacteriological	439	1, 562	177
Chemical	62	76	45
Microscopic			44
Parasitological	48	206	
Physical	655	1, 581	218
Organoleptic			220
Total	1, 222	3, 463	704

gitis which appeared among the horses and mules used by the divisions and the allied Italian pack companies of the Fifth U.S. Army. As the result of special qualifications of the personnel involved, the veterinary section of the 15th Medical General Laboratory became the theater's typing center for human salmonellosis; in addition, investigations were undertaken in regard to determining the role of salmonella in infectious hepatitis in troops; also, a special polyvalent, type O antiserum for rapid testing of human salmonellosis was developed.

18th Medical General Laboratory.—The 18th Medical General Laboratory, in August 1944, superseded the original Hawaiian Department or Central Pacific Area Medical Laboratory (later reorganized as the 14th Medical Laboratory) as the senior laboratory unit in the Central Pacific Area. It also assumed the duties of the 14th Medical Laboratory when the latter was assigned to the Tenth U.S. Army. All foods produced in commercial establishments under veterinary food-security (antibiological) supervision in the Hawaiian Islands were chemically tested and bacteriologically examined in this laboratory. During 1945, the laboratory's veterinary section analyzed 3,778 food samples and examined 648 animal specimens, a workload that involved 25,635 laboratory procedures. Among its special projects were the veterinary-entomological investigation, in January-February 1945, of the allegation by the French Colonial Government on New Caledonia that Army horses procured in Australia had introduced cattle ticks (*Boophilus annulatus*, var. *australis*) and the veterinary surveys of the animal disease situations in the Marianas Islands group after their capture or recapture from the Japanese. Original studies were conducted on the efficacy of BAL (British anti-lewisite) in the treatment of experimental arsenical poisoning in laboratory animals. Studies were also undertaken to determine

the efficacy of DDT for controlling ticks on Army dogs, ectoparasites on signal pigeons, ear mites of laboratory animals, and the stablefly on horses.

19th Medical General Laboratory.—This unit, after its arrival in August 1944, became the central control laboratory for the SWPA; on 28 June 1945, it was transshipped from New Guinea to station at Manila, Luzon, P.I. The veterinary department of the laboratory operated the food analytical section and the animal colony. During the fall of 1944, the veterinary officer was detailed as senior officer in charge of a virology team which investigated an epidemic of poliomyelitis in Sixth U.S. Army troops on Leyte. Studies also were made of scrub typhus infection in troops.

1st Medical Laboratory.—Shortly after its arrival in the North African-Mediterranean theater in March 1943, the 1st Medical Laboratory was assigned as the communications zone laboratory for the Eastern Base Section. Its base stationary laboratory was located near Constantine, from which the three mobile sections were sent out. This activity lasted for approximately 1 year. During the spring of 1944, the laboratory was transferred to the Italian peninsula and then to the Seventh U.S. Army, accompanying that command to southern France. As an army-type laboratory, the 1st Medical Laboratory was transferred to the European theater on 20 November 1944, where stations were established successively at Besançon, Épinal, and Sarrebourg, in France; then at Kaiserslautern, Darmstadt, Tauberbischofsheim, Bad Mergentheim, and finally Augsburg in Germany. After V–E Day it was returned to Darmstadt. Its operations there were later assumed by the 4th Medical Laboratory in November 1945. The laboratory veterinarian conducted examinations and tests of water and locally procured foodstuffs, including the rendition of ante mortem and post mortem examination of animals purchased by the Army.

2d Medical Laboratory.—The 2d Medical Laboratory arrived in the North African-Mediterranean theater on D-plus-45-day and was soon established as a communications zone laboratory at Casablanca for the Atlantic Base Section. During mid-1943, the laboratory was transferred to the Fifth U.S. Army and ceased operations pending its movement to the Italian peninsula. As that army's medical laboratory, it operated a base stationary section with three satellite mobile laboratories, the former originally located in Naples. During 1944, the main element of the 2d Medical Laboratory moved to Vairano, and thence to Anzio, Grosseto, Fabrica, and Florence. It ceased operations on 3 June 1945, and prepared for deployment to the Asiatic-Pacific theater. There was only a limited demand for veterinary laboratory work, so that the main duties of the unit's veterinary officer were, as chief of the parasitology branch, to render clinical and routine examinations of fecal and blood specimens (human). Some laboratory work was performed on the Army dogs in the theater for the diagnosis of *Dirofilaria immitis* (heartworm).

3d Medical Laboratory.—This unit arrived in Brisbane on 18 June 1942, and divided into two sections: the Headquarters Section at Brisbane and the Advance Section at Townsville. This was the only laboratory unit in the SWPA and Australia until the arrival of the 5th Medical Laboratory in mid-1943. Then, pending arrival of the 8th Medical Laboratory in August 1943, the Headquarters Section moved to the Oro Bay area on New Guinea; the Advance Section established station at Lae, New Guinea, and a detachment proceeded to Hollandia. In early 1945, the Advance Section transshipped to Leyte and thence to Mindanao, P.I., and the Headquarters Section joined up with the detachment at Hollandia. In mid-1945, the Headquarters Section moved to Manila, arriving on 10 August 1945, followed with the arrival of the Advance Section from Mindanao on 13 November 1945. Because of the division of the unit into two or three operating sections, the veterinary laboratory activities were somewhat limited. The unit veterinary officer served with the Headquarters Section in Brisbane, and later in Dobodura, New Guinea, and also, as the acting commanding officer of the special detachment, proceeded to Hollandia. Routine bacteriological and chemical water and food analyses were rendered by the veterinary officer, and special bacteriological investigations were made of outbreaks of foodborne diseases.

4th Medical Laboratory.—Within 2 months after arrival overseas, the unit established station as the Mediterranean Base Section laboratory in central North Africa. It was transshipped to France, arriving at Marseilles in September 1944, and, on 20 November 1944, it was transferred to the European theater. The 4th Medical Laboratory functioned as a communications zone laboratory in the European theater's SOLOC (Southern Line of Communications) and then in the Seine section. On 30 May 1945, it moved to Paris, and on 7 June 1945, it assumed the duties of the 1st Medical General Laboratory which was then preparing for redeployment to the Pacific theater. Routine veterinary laboratory procedures included a total of 1,707 tests during 1944 and 3,344 tests during the first 6 months of 1945. Most of these pertained to the bacteriological, chemical, and physical examination of water and food. Certain diagnostic biologicals were prepared for limited distribution to hospitals in southern France.

5th Medical Laboratory.—This unit operated laboratory sections in Brisbane and Townsville, but in November 1944 the unit established laboratory facilities in the Milne Bay, New Guinea, area where it remained until 1 April 1945, when it left for Finschhafen preparatory to staging for transfer to Manila, leaving on 4 July 1945. No extensive laboratory activities were engaged in while on Luzon, and following V–J Day it embarked for Kyushu, Japan. The veterinary personnel performed all bacteriological examinations of water, parasitological examinations of human fecal specimens, and bacteriological examinations of food. Special laboratory investigations were made of two foodborne outbreaks among troops. Table 35 shows the work-

load of the Veterinary Section, 5th Medical Laboratory, and is typical of the Army Veterinary Service in many medical laboratories which were deployed in the theaters overseas during World War II.

TABLE 35.—*Examinations conducted by the Veterinary Section, 5th Medical Laboratory, 1943–45*

Examinations	1943	1944				1945
	4th Quarter	1st Quarter	2d Quarter	3d Quarter	4th Quarter	1st Quarter
Bacteriological water examinations	86	300	413	154	64	7
Parasitological examinations of human stools	121	82	272	186	21	3
Bacteriological food examinations	47	41	16	44	15	4
Miscellaneous (Zondek test; rabies examinations, etc.)		9	21	12	17	
Total	254	432	722	396	117	14

6th Medical Laboratory.—This was the only medical laboratory unit in the South Pacific Area, arriving on Guadalcanal in February 1944. It rendered laboratory service to the American bases on New Zealand, New Caledonia, Espiritu Santo, and the island groups of Fiji, Solomon, Russell, New Hebrides, and others. Veterinary examinations of food products that were obtained in New Zealand by the U.S. Joint Army-Navy Purchasing Board, South Pacific Area, constituted the main activities of the veterinary section. This activity was largely responsible, by laboratory test procedures, for the improvement of foods supplied to the Armed Forces who were subsisted on the foods procured by this Navy-controlled joint purchasing board.

7th Medical Laboratory.—This laboratory was assigned to the Third U.S. Army for operations in the European theater. As an army-type mobile laboratory, it left for the Normandy Beachhead (Utah) in July 1944 and then moved to Muneville-le-Biengard, Tirepied, and Vitré (where it picked up its lost equipment), reaching Orléans on 22 August 1944. It was divided into two sections, one on each flank of the Army, that leapfrogged along as the army advanced. The first section set up station successively at Metz, France; and at Bad Kreuznach, Bebra, Lauf, and finally at Gräfelfing in Germany, where it was joined by the second section which had proceeded through Luxembourg, Frankfurt, and Lauf.

8th Medical Laboratory.—In the SWPA, the laboratory divided into an Advance Section which set up laboratory facilities in Townsville, while the Headquarters Section proceeded to Brisbane. A detachment was later deployed to New Guinea. On 29 August 1944, the two sections in Australia embarked for Biak Island where they were joined by the detachment from New Guinea, the entire unit finally coming together in October 1944. The

Advance Section of the laboratory in May 1945 was transshipped to Luzon, setting up station at San Fabian, followed by the Headquarters Section which moved to San Fernando in August 1945. The unit ceased operations on 18 December 1945, and on 10 February 1946, was inactivated. Both the Headquarters and Advance Sections of the laboratory while in Australia were provided with veterinary officers. During the 1-year period in Australia, the Advance Section rendered routine laboratory tests on an average of 82 food samples per month, whereas the base section, which reported in a different manner, conducted an average monthly total of 82 bacteriological, 158 chemical, and 101 physical tests and examinations on food products, including canned meats which were being procured in Australia. Veterinary personnel supervised the animal section of the laboratory (including up to 900 animals), rendered routine analysis of all water samples, and, in addition, prepared biologicals for theaterwide distribution. Special laboratory investigations were conducted on outbreaks of foodborne infections, and veterinary officers assisted in the isolation and study of human influenza viruses and in the purification of a test antigen for the diagnosis of filariasis in troops.

9th Medical Laboratory.—The 9th Medical Laboratory, after its arrival in the China-Burma-India theater in early 1944, set up station at Chabua and continued operations there until 30 September 1945, when its activities were stopped and preparations were made for return to the United States. An insight into the activities of this laboratory's veterinary section may be gained from the review of a summary statement for the 6-month period ending December 1944 (*27*):

* * * * * * *

3. Following tests were conducted during this period:

a. Water and ice (completed tests)		1,904
b. Foods and beverages (bacteriologic)		58
c. Forage specimens		1
d. Veterinary bacteriology		51
Smear examinations only	7	
Autogenous bacterins	1	
Anthrax vaccine tests	15	
Cultural studies	28	
e. Veterinary serology		26
f. Veterinary pathology		57
Autopsies	27	
Rabies examination	4	
Other histopathology	19	
Hematology	6	
Urine examination	1	
g. Veterinary parasitology		281
Blood specimens	171	
Fecal specimens	103	
Miscellaneous	7	

(No duplications. Cultures and sections from autopsies, etc., not listed separately.)

4. Three field investigations made during this period are listed below:
   a. During period 16 July–2 Aug. 44 visited Co E, 13th Med Bn Mtn at Warazup, 22nd Chinese Div. at Kamaing, and 38th Chinese Division at Mogaung, diagnosing surra in the latter unit.
   b. During period 16–18 Oct. 44 visited Rāmgarh Training Center, diagnosing "vaccination anthrax."
   c. During period 24–26 Nov. 44 visited the 38th Chinese Division at Momauk and Si-in near Bhamo, Burma, diagnosing infectious equine anemia.
5. Miscellaneous items of veterinary interest follow:
   a. Three out of four dog heads examined were positive for rabies.
   b. In 101 examinations of dog feces (mostly from War Dogs) found the following infections:

Hookworm	75
Trichuris vulpis	5
Dipylidium caninum	1
Toxascaris leonina	1
Negative stools	23

   c. In 20 examinations of blood from War Dogs found four infected with *Dirofilaria immitis.*
   d. Found *Taenia echinococcus* in three sets of beef organs (liver, lungs, heart); *Cheilospirura hamulosa* in a lot of several chicken gizzards; and *Taenia hydatigena* in the liver capsule of a pig. Commonest parasites noted in autopsies of Chinese and American Army horses and mules were stomach worms (*Habronema sp.*), strongyles, and *Gastrophilus* larvae. A few *Setaria equina, Oxyuris equi,* and flukes were also observed.
   e. Have received four horse or mule brains from China (Y-Force) from animals showing nervous symptoms suggestive of equine encephalomyelitis. Sections showed no definite lesions of encephalitis. Cultures and animal inoculations were negative. At least two of these animals had liver damage (flukes in one), with incomplete autopsy reports on the others. It is thought that these are cases of hepatogenous toxic encephalopathy.
   f. An outbreak of salmonellosis in Chinese Army horses and mules near Ledo was diagnosed 13 Nov. 44. The etiologic agent was culturally and biochemically a *Salmonella,* and was serologically typed by C. D. Cox, 1st Lt., SnC, of this organization, as *S. rottbus.* Ten or a dozen animals were affected before the outbreak was checked by sulfaguanidine and sanitation measures.
   g. A group of nine cases of nervous symptoms, resembling encephalitis, in dogs is being studied. Eight were War Dogs and one a pet. Of four deaths only one brain has been obtained. This, in addition to the complete autopsy of the pet animal, shows a severe encephalitis of unusual type. Cultures and the inoculation of usual lab animals have been negative. If further cases can be obtained it is planned to use puppies and mongooses if available in time. Lesions are limited almost entirely to the brain and the two sets of slides represent one early and one late case, but the picture is still somewhat incomplete.
   h. A scattering of swollen cans of food has been examined. Hydrogen swells and some due to thermophilic anaerobic bacteria have been the chief causes. This laboratory is somewhat limited in equipment and materials for anaerobe culture work, but the procedures have been recently extended and more satisfactory results are anticipated.

* * * * * * *

10th Medical Laboratory.—On arrival in the European theater in March 1944, this laboratory was assigned to the First U.S. Army. As an army-type

laboratory it proceeded to the Normandy beachhead (Omaha) on D-plus-11-day, where for almost 1 month it operated at 50 percent capacity as the only Army medical laboratory on the European Continent. It then set up station successively at Saint-Lô, Alençon, La Capelle, and then at Eupen, Belgium, where it was subjected to enemy bombardment from 16 through 19 December 1944, and again during March 1945. During the first part of 1945, it moved to Godesberg, Germany, and later to Jena. After V–E Day, it took all the workload of the 362d Medical Laboratory in the Ninth U.S. Army area, but it ceased operations on 31 May 1945. On 12 June 1945, it was returned to France in preparation for redeployment, but on 12 November 1945, it was inactivated. The veterinary section of the laboratory, during the 11½-month period of operation under field conditions on the European Continent, rendered a total of 7,348 examinations and tests, mainly in connection with the examination of water. Over 1,500 examinations and tests procedures were conducted on animal specimens and food samples (or about 25 percent of the total number of laboratory tests performed in the veterinary section).

12th Medical Laboratory.—The 12th Medical Laboratory with its organic veterinary section was established on Saipan in the Marianas Islands group during July 1945. Its location there was dependent upon a plan for its utilization as a communications zone laboratory for supporting many large hospitals which were being grouped in the Western Pacific Base Command (including the Army bases on Angaur, Guam, Saipan, Tinian, and Iwo Jima) in connection with the planned assault on the Japanese homeland.

14th Medical Laboratory.—The 14th Medical Laboratory was the only unit of this type to be activated overseas. It was organized to include personnel formerly assigned to the Central Pacific Area Laboratory. The new unit continued to operate as the central and control laboratory in the Central Pacific Area until relieved by the 18th Medical General Laboratory in late 1944. At about this time, the 14th Medical Laboratory was reassigned to the Tenth U.S. Army and was subsequently deployed to Okinawa. Following V–J Day, it was redeployed as a service command-type laboratory to Korea. The laboratory ceased operation on 16 February 1946, and was inactivated on 31 May 1946. The assigned veterinary personnel, for the most part, maintained the laboratory's animal colony, and after December 1945 the veterinary officer assumed duty as commanding officer.

26th Medical Laboratory.—This unit, upon its arrival in New Guinea, was assigned to the Sixth U.S. Army and disembarked in Luzon, soon after the start of that campaign (22 January 1945). It comprised the only laboratory service available on Luzon until 1 June 1945, when it was joined by the 363d Medical Composite Detachment (Laboratory). After V–J Day, the 26th Medical Laboratory was transferred to Kyoto, Honshu Island, where it operated as a service command laboratory for the U.S. occupation troops in Japan.

27th Medical Laboratory.—The 27th Medical Laboratory, upon its arrival in the SWPA in August 1944, was staged at Hollandia and then deployed for operations during the Leyte campaign. It established station at Tacloban, Leyte, soon after the landings got underway. During October 1945, the 27th Medical Laboratory was transferred to Hokkaido Island, Japan, to set up a service command-type laboratory at Otaru. The laboratory's veterinary section, while on Leyte, operated the laboratory's animal colony and conducted a clinic for the care of Army dogs and animal pets.

28th Medical Laboratory.—The 28th Medical Laboratory, upon its arrival in December 1944 in Salisbury, England, was stationed near the 1st Medical General Laboratory, but, during March 1945, it was assigned to the Fifteenth U.S. Army. It was actively deployed as that army's laboratory, located first at Heer Agimont in Belgium and then moving to Bergheim, Germany, and to Bad Kreuznach. Following V–E Day, the laboratory was selected for redeployment to the Asiatic-Pacific theaters, leaving through the Marseilles port on 30 July 1945, being routed through the Panama Canal, and arriving on Luzon Island on 12 September 1945. In the next month (after V–J Day) the laboratory was transshipped to Yokohama, Honshu, Japan.

29th Medical Laboratory.—This laboratory was divided into two sections; one section was at Delhi and the other at Calcutta. After 3 October 1945, with the closure of the 9th Medical Laboratory at Chabua, this unit was set up as the India-Burma theater's medical laboratory and served the laboratory requirements of the China theater. The professional services of the unit veterinary officer were used as sanitary inspector of Allied in-bounds restaurants in Calcutta for the period from 10 September to 29 December 1945.

361st Medical Composite Detachment (Laboratory).—The 361st Medical Composite Detachment (Laboratory), upon its arrival in the European theater in the fall of 1944, became one of the two such units that operated in the communications zone (in the Seine Base Section). Preparatory to its deployment, it was staged at Valognes, France, from whence it was moved to Paris, beginning operations there on 30 October 1944. During March 1945, the 361st Medical Composite Detachment (Laboratory), in an exchange of locations with the 1st Medical General Laboratory, was moved to Salisbury, where it became the major medical facility of that kind for the United Kingdom Base Section. During June 1945, the 361st Medical Composite Detachment (Laboratory) ceased to operate and was inactivated several months later. The laboratory's veterinary section received 185 samples and specimens during the period from January through May 1945, involving 992 laboratory procedures. Of this number of procedures, 54 percent were bacteriological in nature.

362d Medical Composite Detachment (Laboratory).—The 362d Medical Composite Detachment (Laboratory), upon its arrival in the European theater (in October 1944), was staged at the 1st Medical General Labora-

tory and then, on 7 October 1944, was assigned to the Ninth U.S. Army. Departing from England and en route for little less than a month, it established station first in Rouen, France. Divided into two sections, this army laboratory moved successively to Wittem, Holland, and then to Helenbrunn, Beckum, and Helmstedt in Germany. During May 1945, shortly after V–E Day, the 362d Medical Composite Detachment (Laboratory) discontinued operations. Up until this time the organic veterinary section participated in studies of foot-and-mouth disease and conducted the analyses of captured German foods in a search for possible intentional contamination.

363d Medical Composite Detachment (Laboratory).—The 363d Medical Composite Detachment was provided on-the-job training with the 27th Medical Laboratory on Leyte, and then, during April 1945, was transferred to Luzon. On 1 June 1945, the laboratory established station at Dagupan, continuing there for several months past V–J Day. Food analyses comprised the major activity of the laboratory's veterinary section; 1,092 procedures were conducted during the 5-month period, June to November 1945.

A review of the veterinary activities of the 23 numbered laboratory units that were deployed in the major oversea theaters shows that the scope of activities and the accomplishments of the veterinary laboratory service varied greatly among the separate laboratory units. These laboratories were developed for operations under field conditions and to that end were organized, equipped, and trained in a manner facilitating their adaptation to meet the military requirements for almost any type of medical and veterinary laboratory service which could be placed upon them. In the instances of the general medical laboratories and of many of the army-type medical laboratories that operated more or less in permanent station, the veterinary personnel of the laboratory provided routine clinical and diagnostic and research laboratory facilities that were valuable to meet the special laboratory needs of the Army Veterinary Service in that area. Under those field conditions, however, where the army-type medical laboratories operated in two or more sections and changed locations frequently to keep up with the tactical situation, the veterinary section frequently lost its true identity, and its personnel were used to operate in other sections or departments of the laboratory. In some instances there were only a few purely veterinary laboratory problems except to maintain the animal colony of the laboratory. In other laboratories and theaters, veterinary personnel were engaged in far more extensive veterinary laboratory work.

There were many reasons for this variation in the scope of deployment and in the extensiveness of the veterinary laboratory facilities and work. Although there were certainly definite requirements for a veterinary laboratory service in each theater or area overseas, the failure on the part of veterinary officers to properly plan, supervise, and coordinate these activities from a theater or staff level accounted for some variations. Many veterinary officers, also, were too preoccupied with immediate day-to-day operations and

frequently overlooked matters which might well have been referred to a laboratory for further investigation.

Veterinary Laboratory Service in Minor and Other Oversea Commands

In only two or three other areas during World War II was there an urgency of requirements for a veterinary laboratory service which was not satisfied by a Medical Department laboratory system as existed in the major theaters. In the South Atlantic area, in New Zealand of the South Pacific Area, and in Iceland, the veterinary laboratory requirements were placed upon hospital laboratories, quartermaster facilities, and foreign civilian university and medical laboratories. In the South Atlantic and the South Pacific Areas, where a sizable quantity of foods were procured by the Armed Forces, veterinary food analytical laboratories were required, but the troop strengths of the relevant areas precluded the deployment of any of the foregoing medical laboratory units. In the South Atlantic Area, utilization was made of the 200th Station Hospital, Recife, Brazil. In the 2-year period, 375 food samples were referred to this hospital laboratory.

In New Zealand, where the U.S. Joint Army-Navy Purchasing Board, South Pacific, procured millions of pounds of foods for the Armed Forces under the provisions of reverse lend-lease agreement, the Army Veterinary Service in and about the Auckland area depended upon the clinicodiagnostic laboratory of the 30th General Hospital for conducting most of the food analyses. After December 1944, however, the Purchasing Board established its own laboratory, with a veterinary officer in charge, that assumed most of the workload previously handled by that hospital. Recourse was made to the utilization of local civilian medical laboratories elsewhere throughout New Zealand.

Much the same occurred with the U.S. forces located in Iceland, where a cooperative program for improving the local animal livestock and food industries was conducted with the assistance from the Government of Iceland. The Army Veterinary Service established and operated a veterinary laboratory at the University of Reykjavik (figs. 42 and 43). This veterinary laboratory conducted the analyses of foods procured by the Armed Forces and sought a program of laboratory control over the local civilian food industries, particularly of dairy products. Also, clinicodiagnostic services and research studies of diseases common to the animal population were carried out.

Medical laboratories comparable to those established in the corps areas or service commands in the Zone of Interior were established in the Northwest Service Command and the oversea departments. In the Hawaiian Department, responsibility for the medical laboratory system originally devolved upon two hospitals, but, during January 1942, the Hawaiian Department Laboratory was organized with location in Honolulu. On 10 November 1943, this department laboratory was redesignated the Central Pacific Area Labo-



FIGURE 42.—Laboratory building of the University of Reykjavik, Iceland, 1941. Veterinary laboratory of the U.S. forces was located in lower left corner room on front.

ratory and continued as the theater's central laboratory until late 1944, when the 18th Medical General Laboratory arrived from the Zone of Interior. The Central Pacific Area Laboratory, on 30 June 1944, was assigned to the Central Pacific Base Command and, on 8 July 1944, was reorganized and redesignated as the 14th Medical Laboratory.

Another department laboratory was that of the Puerto Rican Department, later redesignated the Antilles Department Medical Laboratory, located in San Juan. It was organized to include a veterinary section to which an officer and two enlisted personnel were assigned for 2 years or more; with the removal of veterinary personnel during 1944, the veterinary activities within the laboratory were delegated to the bacteriology section. During World War II, the veterinary laboratory service was extended to the conduct of sanitary surveys of beach sites for recreational purposes and to the establishment of sanitary control over local food procurements.

Within the same classification as the medical laboratories of the Hawaiian and the Puerto Rican Departments there was a third laboratory outside the Zone of Interior in which veterinary services were rendered. This was the Northwest Service Command Laboratory located in Edmonton, Canada—a veterinary officer being assigned there during the period from June 1943 to April 1944 in charge of the laboratory's Food Analysis and Examination



FIGURE 43.—Veterinary laboratory at the University of Reykjavik, Iceland, in 1941.

Section. Its most outstanding contribution was its establishment of an original laboratory quality control program over the local fluid milk industry.

RELATION WITH OTHER LABORATORIES

Another problem of major concern to the Army Veterinary Service was its relationship to the laboratory services of the other services of the Army (such as the Chemical Warfare Service, Quartermaster Corps), of the other Armed Services (Air Force and Navy), of the Federal agencies (such as the U.S. Department of Agriculture), and of State or local governmental and private industrial laboratories. Collectively, they could not meet the laboratory demands of the Army Veterinary Service; during World War II, some few laboratories which had been used in the preceding peacetime period withdrew their services for the Army because of their own personnel shortages and wartime peak workloads. This occurred in the vicinity of the Seattle, Wash., and Mira Loma, Calif., depots (*28*, *29*). Also, many local public health laboratories which were being used in connection with the inspection of the fresh milk supply to Army camps gradually withdrew or curtailed their services during the war. Commercial or civilian laboratories were often too limited in their facilities, personnel, and time to provide a complete food analytical service and sometimes used short-cut test proce-

dures giving results which no central control laboratory could have properly interpreted in any survey of such laboratories' efficiency. During the war period, Army contractors were urged to maintain their own quality-control laboratories, but only certain of the food industries (such as the milk canning, dried milk, and egg drying plants) accomplished this with any degree of merit; the smaller establishments and most of the Army's canned meat contractors could not or would not (probably for economic reasons) establish plant quality-control laboratories. The latter depended on the rapid collection and shipment of samples by in-plant Army veterinary inspection personnel located in their establishments and then at times voiced criticism of veterinary food inspection service when the concerned Army laboratory did not immediately report analytical test results on the submitted samples.

Quartermaster Corps Depot Laboratories

The veterinary laboratory service as a component of the Medical Department laboratory system constituted the official facilities for the analyses of meat and dairy products when procured by the Army Quartermaster Corps. This relationship to the Quartermaster Corps led to the development of a military veterinary laboratory service that needed to be accurate as well as rapid. The laboratories had to be located, properly organized, and adequately equipped to satisfy the laboratory requirements of the food supply chain that extended from contractors' plants, through the depots and ports, to the distribution points in all parts of the world. The purposes were the assurance of food quality as related to the monetary payments and the assurance of the safeness of the foods for troop issue. In addition to participation in food procurement inspections, the veterinary laboratory service assisted in the Army surveillance program against serious loss of Government-owned foods in storage and conducted cooperative programs of research on quality control and the storage life of foods.

The Quartermaster Corps developed a laboratory system of its own, suitable to its needs, but, unfortunately, this at times threatened to expand into the mission of the Medical Department laboratory system. For example, the quartermaster depot system during World War II developed laboratories which were little less active in their scope of operations, including food analyses, than the service command laboratories in the Zone of Interior. On the other hand, there was no veterinary problem in connection with quartermaster laboratories concerned with the examination and developmental studies of packing and packaging materiel, or such analyses of nonanimal-origin foods that did not involve a health problem, or the development of assembled rations. Seemingly, the new assignment of veterinary officers into the quartermaster depots during the early part of the war period seemed to have been the signal for the establishment or development of many such laboratories inside the depots. When it became evident that the corps area (later renamed service command) medical laboratories would be able to

satisfy all veterinary laboratory requirements, the depots either modified their original plans or continued to establish a general testing laboratory, but other depots proceeded to establish a subsistence laboratory. This conflict with the Medical Department's laboratory system was generally apparent, but the Surgeon General's Office approached the problem with the attitude that no veterinary laboratory service of a permanent nature would exist outside the Medical Department.

The Surgeon General's Office, however, differentiated between the quartermaster responsibilities and the medical responsibilities in connection with food analyses, generally accepting the fact of veterinary officer participation in the subsistence testing laboratories which were being developed in the quartermaster depot system, but specifically refused the deployment of qualified and trained veterinary laboratory personnel and the utilization of medical equipment and supplies at the quartermaster depots and sections of general depots (*30*).

Subsistence laboratories, however, were established and operated under the supervision of depot-assigned veterinary personnel (who were then under the control of the Quartermaster General) at the depots located in Atlanta, Ga., Oakland, Calif., Charlotte, N.C., Jersey City, N.J., Kansas City, Mo., Memphis, Tenn., Mira Loma, Calif., and Seattle, Wash. A major factor influencing this development included the assignment to them of food procurement inspection responsibilities in the larger metropolitan areas, the difficulties of shipping food samples to far-distant medical laboratories, and the urgency of a rapid laboratory reporting system in connection with food procurement. The timelag between the shipment of food samples and the receipt of the laboratory report of analysis was a constant problem which some quartermaster procurement officers believed could be overcome by a quartermaster food laboratory service. Of the foregoing laboratories, six evolved as expansive medicotechnical laboratories under the supervision of the depot veterinary service. These were equipped, funded, and manned by the Quartermaster Corps, including for the most part, one to three civilian bacteriologists and chemists in each. The civilian staff in the Jersey City's Miscellaneous Subsistence Laboratory totaled 30. In the Mira Loma depot's Subsistence Laboratory, the chemical analyses of food was conducted by a civilian employee, and food bacteriology was accomplished by the Army veterinary officer.

Among these depot subsistence laboratories, the Oakland depot's food laboratory was probably the most active and best equipped facility of its kind. It was the continuation of a food analytical laboratory which had been established just before the war at the former San Francisco Port of Embarkation and General Depot, Fort Mason. During the period from 1939 through 1945, this depot facility conducted more than 143,000 laboratory examinations and tests. Referring to the conduct of 40,050 tests in 1944, it is noted that these involved 14,630 samples which were representative of more

than 78 million pounds of food. On the basis of the results of the tests, 69 million pounds of food were recommended as satisfactory for Army procurement; 9 million pounds were recommended as unsatisfactory. Of the total number of tests, the bacteriological examinations and the chemical analyses numbered approximately the same, 20,425 and 19,625, respectively. Incidental to the laboratory examination of milk samples from the milkshed of the so-called Metropolitan Bay Area, Calif., it was found that 90.53 percent of raw milk samples from 581 milk producers supplying the Army had a bacterial count under 50,000 per cubic centimeter on standard plate count in 1944. It also conducted laboratory investigation of foodborne infections among troops in the area and was largely responsible for the development of a formula which was used in the manufacture of fruitcake for oversea shipment into the Pacific theaters.

Two or three other depot laboratories were established for reasons none other than that the depot veterinary service, conducting a relatively large amount of food procurement inspections in contiguous metropolitan areas, seemed to have required a convenience of facilities which were not available through the Medical Department's laboratory system. This was true of the Kansas City depot food laboratory which before its closure in January 1946 was used in a veterinary quality-control program for the milk supplies coming out of that area for the Armed Forces and in connection with the procurement inspection of Army boneless beef (*31*). It was in operation for little less than 2 years. At the Memphis depot a subsistence laboratory was opened in mid-1942, and at the Charlotte depot a subsistence inspection branch laboratory was opened during 1941, which in time became a general service laboratory under veterinary supervision.

The laboratory services previously rendered for the depot in Mira Loma by the Food and Drug Administration, Federal Security Agency, were withdrawn in January 1945, and, in June 1945, the depot established its own laboratory. Much the same occurred in regard to the utilization of that Federal agency's facilities in Seattle, for in 1942 the depot made use of the Ninth Service Command Medical Laboratories. However, in August 1943, the Seattle Army Service Forces depot established the Laboratory Section, Veterinary Inspection Branch, which gradually developed into a general service laboratory. In 1945, it assumed the workload of the Ninth Service Command Medical Laboratory, Fort Lewis, following its discontinuance. In the period of its operation, August 1943 to December 1945, 18,000 samples were processed through this laboratory. Its most notable contribution was the cooperative study with the American Can Company on a canned dogfood which was used in feeding Army dogs.

Aside from the developmental studies on a cake formula at the Oakland, Calif., depot and those on canned dogfood at the Seattle depot, possibly the only other work of importance in military veterinary research in these quartermaster subsistence laboratories was the development of a simple method

by the Atlanta depot of testing the efficacy of dishwashing procedures. This study was conducted in cooperation with the Fourth Service Command Medical Laboratory, Atlanta (*32*).

Commercial Laboratories

In various commercial food establishments producing for the Armed Forces, the Army Veterinary Service had no recourse other than to provide the necessary routine food analytical services. What was desired was that the Army Veterinary Service conduct a program of check control over local governmental and plant laboratories. It is a matter of record, however, that many food establishments depended on the Army Veterinary Service to provide the plant quality controls because the service came free of any direct charge. Of course, where plant laboratories were maintained, difficulties arose over the interpretation and use of that laboratory's results, keeping in mind that these could be influenced by the plant's management or by improper analytical procedures.

Few, if any, steps were taken to minimize the problems attendant to the lack or failure of food establishments to establish or maintain their own plant laboratories. The war saw the beginning of such demands on the members of at least two food industries—the cheese manufacturers and the dried egg producers. The demands on the cheese manufacturers came about during the latter part of the Army's 1943 cheese procurement and storage program. At that time, the Office of Price Administration scheduled ceiling prices for cheese according to the moisture content; cheese with a moisture content of under 33.2 percent was marketed at a premium price. The Army's cheese buying program was then amended to add to the regular organoleptic examinations by the Army Veterinary Service, the requirement for determining the moisture content of cheese. Thousands of laboratory analyses were foreseen; in the beginning, hundreds of cheese samples were submitted to the Veterinary Food Chemistry Section, Sixth Service Command Medical Laboratory, Fort Sheridan, Ill. (*17*):

> This did not prove satisfactory, however, since "oiling" and loss of moisture usually occurred in the samples during transit.
>
> A substitute procedure was then arranged by the Sixth Service Command Veterinarian whereby the required cheese analyses were obtained from certain warehouse laboratories at points where the products were inspected. The Army Laboratory Veterinarian checked the equipment and methods of these laboratories, and the inspectors submitted cheese samples to them under coded identification. The results of the laboratory's tests on coded samples then were compared with company records which were submitted to the Army inspector before the latter personally selected his samples, coded them, and submitted them for local testing. Significantly, veterinary officers qualified to do so conducted their own tests utilizing the facilities of commercial or warehouse laboratories, and in other instances supervised the conduct of the tests.
>
> Some duplicate cheese analysis was continued by the Food Chemistry Service, 6th Service Command Laboratory, for confirmation of field reports. Close liaison was main-

tained with technicians from other laboratories for correction of any discrepancies. The new method saved time, gave accurate analysis, and was continued to the end of the war with excellent results.

The same veterinary program of dependence on the industry's laboratories and check analyses in the Army veterinary laboratories was repeated in the subsequent cheese procurement and storage programs. These programs approximated 70 million pounds in 1943 and 150 million pounds in 1944. Even with only the so-called check samples, the Army Veterinary Service experienced a heavy workload in its laboratory at Fort Sheridan, Ill., as follows:

	Cheese samples
1943	431
1944	4,856
1945	2,052
Total	7,339

During the peak of the seasonal buying, samples approximated 750 each week, at the rate of 5 check control samples per carlot of cheese.

In the year after the development of the check control by the Army Veterinary Service on the commercial cheese laboratories, the Surgeon General's Office was assisted by the Quartermaster Subsistence Research and Development Laboratory, Chicago, Ill., in developing a similar program with respect to the Army's dried egg procurement. The new program was announced during August 1944 and seemed to have gained some importance as the first official acknowledgment that the food industries which entered into the Army supply program should establish and maintain their own quality-control laboratories subject to surveillance by the Army Veterinary Service (*33*).

An Army Collaborative Powdered Whole Egg Test was conducted preparatory to this August 1944 announcement by the Surgeon General's Office. It had for its purpose the survey of the capabilities of the various veterinary and plant laboratories to conduct certain analyses. In February 1945, the Surgeon General's Office named the Seventh Service Command Medical Laboratory, Omaha, Nebr., as the sole control laboratory for the review of the quality controls maintained in all plants which were producing dried egg for the Armed Forces (*34*).

Other Laboratories

Public health laboratories.—In addition to the commercial or in-plant laboratories, there were the public health and local hospital laboratories which were utilized by the Army Veterinary Service, particularly in connection with safeguarding the milk supply to Army camps and airbases. Unfortunately, many of these withdrew or curtailed their services during the war. In fact, according to a nationwide survey by the U.S. Public Health Service, many became deficient in a facility or technique, so as to raise the question

of their capability to perform a complete laboratory examination and test on milk samples (*35*). This was particularly inopportune when the Army supply program was extended into new areas and food establishments wherein the standards of sanitation and quality control had not been previously measured.

Transportation Corps port laboratories.—During World War II, the Army Veterinary Service with the ports at Boston, Mass., Charleston, S.C., Hampton Roads, Va., and New Orleans, La., improvised small laboratories (*36*, *37*, *38*, *39*). These were developed under much the same conditions that contributed to the organization of many veterinary laboratories inside the quartermaster depot system during the war. They were less active, however, and were directed, for the most part, toward the development and improvement of local fresh milk supplies. The Charleston port discontinued its veterinary laboratory operations when Stark General Hospital undertook the milk analyses work. In the 2-year period from June 1943 through June 1945, the Hampton Roads port conducted more than a thousand tests.

Civil affairs and military government.—The veterinary laboratories in liberated and occupied areas were seldom used to support the Army veterinary laboratory service. In civil affairs and military government activities, however, great emphasis was given to the rehabilitation and operation of the veterinary laboratories of the various countries. Army veterinary officers, especially trained in laboratory work, were frequently assigned to civil affairs and military government duties to assist in such rehabilitation. Indirectly, this helped the Army veterinary laboratory service to the extent that without these rehabilitated laboratories the civil demands in liberated and occupied areas for veterinary clinicodiagnostic services and food analyses would have been passed to the Army.

LABORATORY RESEARCH AND INVESTIGATIONS

This section of the record of the Army Veterinary Service concerns its research and development activities within the scope of military medicine. A large share of these activities were conducted by the Medical Department laboratory system and related independent agencies or facilities which were specifically established for the purpose of conducting research; some activities, including development, were centered in laboratories of the Medical Department school system.

Veterinary Research Laboratory

Veterinary research and developmental activities were greatly accelerated and expanded when The Surgeon General, just before the onset of World War II, projected the plan for studies of certain animal diseases that led to the establishment of the VRL (Veterinary Research Laboratory) at the Front Royal, Va., remount depot (*40*, *41*). The laboratory was most active in con-

ducting important research investigations throughout the subsequent war period; in the fall of 1945, it was relocated at the Fort Robinson, Nebr., remount depot, and then, in mid-1947, was transferred on an inactive status to the Army Medical Center.

The first project, sometimes later referred to as Project No. AVRL–2, had for its objective the development of a means of eliminating equine influenza as a cause of morbidity and mortality of Army horses and mules. The project included several subprojects:

- Clinical laboratory studies of cases (blood picture)
- Pathology
- Utilization of sulfonamides and other therapeutic agents
- Transmission studies of the viral agent and its complementary secondary invaders
- Neutralization studies of the virus of the human, swine, and equine influenzas
- Methods of immunization

The research studies on equine periodic ophthalmia encompassed not only the object for developing a means of its elimination as a cause of losses among Army animals but also the object for determining its etiology. The project, originally designated as V–3, and later as AVRL–3, included several subprojects:

- Pathology
- Relation to bacteria (brucellosis)
- Clinical laboratory studies
- Transmission studies
- Relation to viruses, attempts at isolation
- Relation to parasitic helminths
- Development of diagnostic tests
- Relation to hypersensitivity
- Role of ascorbic acid in ocular lesions
- Relation to nutrition

In 1940, following the relocation of the laboratory at the Fort Robinson, Nebr., remount depot, a third major research project pertaining to diseases of the horse and mule was assigned: No. AVRL–7, Equine Infectious Anemia. The project was undertaken for the purpose of better understanding the disease and with a view toward the development of a biologic control program.

In 1945, toxicological studies were started on trypanocidal drugs—one drug being Antrypol which the Army Veterinary Service in the China-Burma-India theater was using to control trypanosomiasis (surra), and the other being para-arsenosophenylbutyric acid, or Formula 70–A, which the U.S. Public Health Service had developed and suggested for veterinary use. In another instance, a detailed case history of sporotrichosis in horses was also prepared for publication. It was indicated that the present military use of horses and mules in tropical countries where equine skin infections are common makes the differential diagnosis of sporotrichosis a matter of importance because it may closely resemble the skin form of glanders (farcy), epizootic lymphangitis, and ulcerative lymphangitis (*42*).

Aside from the studies of diseases of horses and mules, the Veterinary Research Laboratory studied several diseases common to the dog. These were undertaken as the result of its location at one of the six Army dog centers in the Zone of Interior. Canine filariasis, the infestation of dogs with cereal

mites from dogfood (*43*), and canine leptospirosis were included in this research. Most of the pathological studies of the animal diseases were conducted in collaboration with the Army Institute of Pathology.

In addition to the research on purely animal diseases of importance in military veterinary medicine, the laboratory studied problems for safeguarding troop health. The comparative study of the antigenetic differences of the human, swine, and equine influenzas was one such problem. Another was the conduct of a series of experiments to confirm reported beneficial effects of bovine lung extracts on the healing of wounds. Also, in collaboration with the International Health Division of the Rockefeller Foundation and the Preventive Medicine Division, Surgeon General's Office, a detailed study was made of the infectivity of the human viral agent of infectious hepatitis (catarrhal jaundice) for the horse; subsequently, the horse was determined to be an unsuitable experimental animal for the study of this disease. These studies, started in August 1942, were discontinued on 14 May 1943 (*44*).

The wartime research and developmental activities at the VRL were influenced by two factors: The threatened early closure of the Front Royal remount depot as a military installation and the belief by a few that the lessened military utilization of horses and mules nullified the requirement for the VRL. In connections with the first problem, the Surgeon General's Office, which had been alerted to tentative plans for the inactivation of the depot, obtained special authorization from Headquarters, Army Service Forces, to continue the laboratory at Front Royal until its current projects could be completed (*45*). This occurred during the fall of 1944, and, in April 1945, the Surgeon General's Office recommended that the laboratory be relocated at the Fort Robinson remount depot (*46*).

Headquarters, Army Service Forces, on 1 September 1945, ordered the movement of the VRL to Fort Robinson (*47*). Two officers, seven enlisted personnel, and two civilian employees accompanied the movement which was made during September. During the period of its stay at Fort Robinson, the studies on the original research projects, equine influenza and equine periodic ophthalmia, were continued. A little progress was made on the development of a method for immunizing animals against equine influenza.

Other Research Facilities and Projects

Other veterinary research programs were undertaken at the Medical Field Service School, Carlisle Barracks, which was the parent organization of the Medical Department Equipment Laboratory, and at the Army Veterinary School. Also, outside the sphere of the Medical Department laboratory system, the Army Veterinary Service cooperated with, and provided personnel to, the laboratory systems and programs of research of the Chemical Warfare Service, the Quartermaster Corps, the Signal Corps, the other Armed Forces, nonmilitary Federal agencies, international organiza-

tions, and foreign governments. The laboratory system and research programs were related to equipment and supplies, animal disease control, and quality food control methods.

Gorgas Memorial Research Board.—There were at least two international organizations which, on their request, were provided with veterinary officers for the purpose of conducting laboratory investigations and surveys of animal diseases in foreign countries; namely, the Gorgas Memorial Laboratory and the Pan American Sanitary Bureau. In addition, a veterinary officer was detailed with the U.S. Department of Agriculture to the Joint Mexican-American Commission for the Eradication of Aphthous Fever (1949–51), and, during World War II, six officers were detailed to the research program on rinderpest that was established under the jurisdiction of a Joint United States-Canadian Commission. The latter is considered under the broader aspects of veterinary participation in the antibiological warfare programs of research and development.

Within the scope of research and studies on tropical animal diseases of importance in military veterinary medicine, the Army Veterinary Service seemingly has centered attention on the survey and investigation of animal diseases in the Central American republics. In 1931, such were first undertaken in Panama at the request of the Gorgas Memorial Research Fund. During 1934, the Army Medical Department Research Board transferred from the Philippine Islands to the Panama Canal Department and remained there until November 1939. And then, during the 2-year period, May 1943 to June 1945, a survey of the animal disease situation along the Pan American Highway route from the United States through six Central American republics to Colombia, South America, was conducted on the request of the Pan American Sanitary Bureau.

Pan American Sanitary Bureau.—In the mid-1920's, conferences were held among North American, Central American, and South American countries on the construction of a Pan American Highway. In 1925, the United States provided funds to start construction of that portion from the United States to Panama. Upon the outbreak of the war, plans were made to speed up the construction in order to improve hemispheric defense. The Pan American Sanitary Bureau anticipated an increase of animal disease from the increased traffic. In April 1943, this Bureau requested Secretary of War Stimson to assign an Army veterinary officer to make an animal disease survey on the Central American countries. The Surgeon General designated Lt. Col. John H. Kintner, VC, for this task, and he stated his assignment in June 1943. A Veterinary Survey Group, Caribbean Sector, Pan American Sanitary Bureau, was established with headquarters at Guatemala City, Guatemala. Two more Army veterinary officers and two civilian employees were added to the Group. A mobile veterinary laboratory was furnished by the Army Medical Department, and its equipment was supplied by the Pan American Sanitary Bureau.

The actual survey started in December 1943. The plan of the survey (*48, 49*) included considerable laboratory work in order to make diagnoses. Included in the tests were agglutination tests for brucellosis of 11,000 cattle, 5,000 goats, and 4,000 hogs, and tuberculin tests of some 500 cattle.

Antibiological warfare research and development.—In addition to these relations to such international agencies as the Joint Mexican-American Commission for the Eradication of Aphthous Fever, the Gorgas Memorial Laboratory, and the Pan American Sanitary Bureau, the Army Veterinary Service also participated in programs of antibiological warfare and research. During December 1941, in the Hawaiian Islands, the veterinary service, under the supervision of the Hawaiian Department Surgeon, began a program of antibiological warfare which was soon extended to all "sensitive" foods processed locally for civilian and military alike. In another theater, the senior veterinary officer was named the antibiological warfare officer. While this was taking place overseas, there were other developments in the Zone of Interior (*50*). Reportedly, during 1941, the Secretary of War requested the National Academy of Sciences, Washington, D.C., to survey the current situation in regard to biological warfare and its future possibilities. A committee, designated briefly as the WBC Committee, was named by the National Academy of Sciences, in October 1941, to study this assigned problem, and, in February 1942, the committee reported that biological warfare was feasible and submitted recommendations that appropriate steps should be taken by the United States against it. Brig. Gen. Raymond A. Kelser, Veterinary Division, Surgeon General's Office, was appointed as a member of the WBC Committee. In action subsequent to the committee's report, which was referred to the President, a War Research Service was organized in the summer of 1942. On 19 November 1942, Lt. Col. A. T. Thompson, VC, on duty with the Chemical Warfare Service since March 1942, was detailed as the Army's technical aid and executive officer of the War Research Service.

This Federal agency was civilian controlled, attached to the Federal Security Agency, and depended entirely on facilities, personnel, and experience that already existed in private institutions and in Federal agencies such as the War Department and the Navy Department. It established liaison also with the U.S. Public Health Service, the U.S. Department of Agriculture, and the U.S. Department of the Interior. Briefly, the War Research Service functioned and operated only as a Federal planning and coordinating agency. Technical and professional assistance to this War Research Service was provided by the National Research Council through a newly appointed ABC Committee, which included General Kelser as a liaison member. The service assumed the major task of establishing antibiological programs in the water supply systems and among the milk and food industries in the United States, as had been done in the Hawaiian Islands, and later in other oversea theaters. Its major accomplishment,

however, was the organization of the program of development and research on the many aspects of biological warfare and protection against it. Research studies were carried out for the most part in civil institutions, laboratories, and universities; however, additional developmental operations on a larger scale were soon required. To this end, the War Research Service requested the Army's Chemical Warfare Service to establish laboratories and pilot plants for a more exhaustive research and development program.

As a result of reported enemy interest in biological agents, the War Research Service, in January 1944, stepped up its activities and transferred some of its responsibility to the Chemical Warfare Service. In June 1944, all responsibility in connection with biological warfare activities in the United States were transferred to the War Department. The pace of biological warfare research and development was accelerated, and the War Department set up a new U.S. BWC Committee, which included the former director of the War Research Service as chairman, representatives of the Chemical Warfare Service and the Medical Department, and personnel from the Navy's Bureaus of Medicine and of Ordnance, the New Developments Division of the War Department Special Staff, and the Army's Office of Strategic Services. The former ABC Committee, appointed jointly by the National Research Council and the National Academy of Sciences to provide technical scientific aid to the War Research Service, gave way to a new committee, the DEF, which provided technical assistance to the War Department's U.S. BWC Committee. General Kelser was appointed as a member of the last-named committee.

In the assumption of the role of supervising the biological warfare program, the Chemical Warfare Service organized a Special Projects Division with a base of operations, in April 1943, at Camp Detrick, Md. Field testing installations were set up on Horn Island, Miss., in mid-summer 1943, and at the Dugway Proving Ground, Tooele, Utah, in the summer of 1944. A pilot plant for the investigation of large-scale production was established in early 1944 at Vigo Plant, Terre Haute, Ind. During this time, several Veterinary Corps officers were detailed to the Chemical Warfare Service and acted in the capacity of consultants for the veterinary aspects of the projects that were carried on, as bacteriologists and research workers, and as supervisors of the development and maintenance of much-needed experimental animal colonies. The specific details of their activities and of the projects with which they were associated are classified and cannot be revealed, but it is known that the veterinary profession, represented to a large part by Army veterinary officers, contributed much to the success of the projects as they were related to veterinary aspects of biological warfare.[1]

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[1] Veterinary officers detailed to these installations included Lt. Col. A. T. Thompson and Lt. Col. N. J. Pyle; Majors L. C. Ferguson, A. N. Gorelick, and C. E. Venzke; Captains K. H. Martin, V. W. Nieman, C. J. Nordon, A. S. Rosenwald, and G. A. Young; and First Lieutenants R. C. Fish, R. H. Hoyt, and C. O. Seward.

Not all biological warfare research and development activities were delegated by the War Department to the Chemical Warfare Service. There were other organizations that assumed considerable responsibility under the program originally set up by the War Research Service and later continued by the Army. They were related to Chemical Warfare Service only from a budgetary standpoint. Of interest to the veterinary profession were the special animal-disease research projects on Newcastle disease and fowl plague that were conducted at Harvard University. These projects were begun in 1943 when they were set up by the War Research Service. After September 1944, until their termination in November 1945, these projects were under the direction of the War Department Commission, which included General Kelser as a member (*51* through *55*). The actual research and work was performed by civilian veterinary specialists, and no Veterinary Corps officers were assigned to this project.

War Disease Control Station, Grosse Île, Canada.—Allied in its purpose to the wartime research project on Newcastle disease of poultry was the project on rinderpest that was conducted under the direction of a Joint United States-Canadian Commission (*56*). Its purpose was "* * * to develop ways and means of protecting the livestock industry of the North American continent against a foreign plague that might be introduced intentionally, as an enemy method of biological warfare, or accidentally." The Commission was appointed by the U.S. Secretary of State and the Canadian Minister of National Defense in July 1942. It consisted of a Canadian section and an American section—the latter including R. E. Dyer of the U.S. Public Health Service, E. B. Fred of the University of Wisconsin, General Kelser of the Army Veterinary Service, and H. W. Schoening of the U.S. Department of Agriculture.

A War Disease Control Station was established on Grosse Île, Province of Quebec, Canada, where rigid quarantine and safety procedures were enforced as a means of confining the disease to the experimental area. The actual work was conducted by a joint United States-Canadian scientific staff including six U.S. Army Veterinary Corps officers, one from the Medical Corps of the U.S. Navy, and two Canadian Army scientists.[2] Their first objective was to produce rinderpest vaccine in quantities that might be needed immediately should the disease occur. This was accomplished by February 1944, as follows:

> We have prepared a (chloroform-inactivated bovine tissue) vaccine which, so far as can be told from tests under experimental conditions, is satisfactory for use in protecting cattle against rinderpest. The vaccine, as prepared, is a very slight modification of the one developed and used successfully in the Philippines by Kelser and his coworkers. We have on hand a sufficient amount of finished vaccine to combat initial scattered outbreaks of the disease and we have, further, in frozen storage a relatively large amount of infected tissue which can, on short notice, to be made into vaccine.

[2] The veterinary officers included: Lt. Col. M. W. Hale, Maj. F. D. Maurer, and Captains J. A. Baker, H. K. Cooper, D. L. Jenkins, and T. O. Roby.

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If our vaccine is to be employed at all in Canada or the United States, it will be only as an emergency procedure and in the face of an outbreak of rinderpest. Under such a circumstance, there are very obvious disadvantages to the use of a vaccine requiring multiple inoculations to immunize. We have, therefore, directed our efforts towards the production of one which will confer satisfactory immunity after a single administration. So far as we can determine under experimental conditions, a single injection of 10 cc. of the vaccine is adequate to confer protection. * * * However, because of the possibility that during transportation the vaccine may be submitted to deleterious conditions and, as an added protection in the face of an emergency, it would be safer to place the recommended field dose at 20 cc. per head subcutaneously.

After completing the first objective, investigations were begun on the development of an efficient vaccine which could be produced more economically. These studies actually gave way to virus research which contributed to scientific advances with other diseases. Before the end of 1945, these investigations were concluded with the finding that the rinderpest virus could be adapted to embryonating hens' eggs and attenuated for use in cattle with retention of long-lasting, high antigenic properties; the new avianized vaccine was developed in consideration of its keeping qualities during periods of storage. Subsequently, techniques were developed for the large-scale production of the "live" attenuated-virus rinderpest vaccine (of chick-embryo origin). The successful outcome of the laboratory research and development work at Grosse Île constituted an outstanding contribution to veterinary science by the development of a highly efficient, economical, and safe vaccine which was shown to produce a solid and lasting immunity against rinderpest in cattle. The postvaccination reaction in animals was shown to be mild and of short duration, and the immune response was prompt. Although not then proved by extensive field trial, this new avianized rinderpest vaccine was believed to be safe for use in virgin areas, such as in the United States, should an outbreak occur and to be efficient when used in areas where the disease existed or was rampant.

During the period of 4 years, the scientific staff on Gross Île rendered periodic progress reports and deposited 16 papers with the Joint United States-Canadian Commission for publication when the existent security procedures regarding the rinderpest project were changed. These papers (*57*) covered the following studies:

I. The Cultivation of Rinderpest Virus in the Developing Hen's Egg
II. Certain Immunity Reactions
III. Immunization Experiments With Inactivated Bovine Tissue Vaccines
IV. Infection of the Embryos and the Fluids of Developing Hens' Eggs
V. Attempts To Prepare an Effective Rinderpest Vaccine From Inactivated Egg-Cultivated Virus
VI. The Persistence of Virus in Chicks Hatched From Infected Eggs
VII. The Attenuation of Rinderpest Virus for Cattle by Cultivation in Embryonating Eggs
VIII. Rinderpest Infection in Rabbits
IX. Neutralization Tests in Rabbits as a Measure of the Immune Responses in Calves to Vaccination Against Rinderpest

X. The Response of Guinea Pigs to the Virus of Rinderpest
XI. The Survival of Rinderpest Virus in Various Mediums
XII. The Successful Use of Young Chicks To Measure the Concentration of Rinderpest Virus Propagated in Eggs
XIII. The Production of Rinderpest Vaccine From an Attenuated Strain of Virus
XIV. Immunization Experiments With Attenuated Rinderpest Vaccine, Including Some Observations on the Keeping Qualities and Potency Tests
XV. Morphological Changes in the Blood of Young Cattle During Rinderpest and After Vaccination With Attenuated Virus Vaccine
XVI. Complement Fixation Test for Rinderpest

In 1946, the United States and Canadian Governments jointly donated a million doses of the avianized rinderpest vaccine to the United Nations Relief and Rehabilitation Administration for use in China.

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CHAPTER XII

Civil Affairs and Military Government

DEVELOPMENT

The Army Veterinary Service with CA/MG (civil affairs and military government) was an innovation of World War II; it was developed without precedent and prewar planning. Nowhere before had Veterinary Corps officers been involved in any kind of administrative, supervisory, or surveillance duties over the veterinary affairs of a foreign country, its government and economy. During the war, in the Allied-liberated countries and recaptured areas and in the occupation of surrendered countries, these personnel succeeded in the application of civilian public health and veterinary measures which protected the health of the American fighting forces and its animals against the threats of indigenous animal and foodborne diseases, and concurrently aided in the early restoration and beginning rehabilitation of the respective countries' veterinary public health and agricultural livestock industries. As will be observed in the following paragraphs, the extent or degree of veterinary CA/MG activities varied among the theaters and, from time to time, from that of minimal observance (or surveillance) and assistance in civilian affairs to that of direct military government or of actually conducting or supervising the immediate veterinary services.

The missions and functions of the Army Medical Department were early defined in Army Regulations to include "the preservation of health and the prevention of disease among personnel subject to military control, including the direction and execution of measures of public health among the inhabitants of occupied territory" (*1*). Then, in 1940, the War Department in its field manual on military government described the type organization for a civil affairs section of the staff of theater commanders as including a public health department with a doctor of medicine in charge (*2*). It further stated that "this department will exercise supervision over the public health, including sanitation, the control of communicable diseases, the protection of food, milk, and water supply * * * drugs, the practice of * * * veterinary medicine, diseases of animals, and similar matters." Later, in December 1943, the foregoing publication was adopted in a revised form as a joint Army and Navy manual on military government and civil affairs, and the reference to veterinary matters, especially food inspection, was repeated in the description of the public health and sanitation functions of civil affairs (*3*). The Navy had no veterinary personnel, but this reference to veterinary matters in the joint publication undoubtedly gave origin to the unexpected utilization of Army Veterinary Corps officers by the Navy-administered CA/MG on islands in the Pacific theater.

Within the Army organization, overall policy matters concerning the administration and government of areas occupied or liberated as a result of military operations were handled by the Civil Affairs Division, War Department Special Staff. This was established in the spring of 1943 and included a medical or public health section as a part of that division's Civilian Relief Branch. Previously, the War Department General Staff's Operations Division (predecessor to the War Plans Division) had been processing such matters as arose at the time of the invasion of North Africa in November 1942. Even before then, however, the Assistant Chief of Staff, G–1 (Personnel) of the War Department General Staff was assigned responsibility for selecting military personnel who were to be used in CA/MG activities, but, after the start of the war, the Provost Marshal General actually selected and trained the personnel for such assignments. Liaison and channels of communication were maintained with these by The Surgeon General, who in January 1944 established the Civil Public Health Division as a component of the Preventive Medicine Service, Surgeon General's Office. Earlier, or in June 1943, within that office, medical planning for supply aid to civilians in liberated countries was undertaken in the newly designated CAD (Civil Aid Division) Board. Eventually (in February 1944), this CA/MG planning by both the Preventive Medicine Service and CAD Board was coordinated and centralized in a specialized branch of the Operations Service, Surgeon General's Office. Pertinent matters were referred to the Veterinary Division, Surgeon General's Office, for review and comment, although one veterinary officer was designated part-time membership on the aforementioned supply planning board.

The decision to use veterinary officers in CA/MG operations during World War II was made in the summer of 1943 by the Civil Affairs Division, upon recommendation of The Surgeon General. Ever since the development of modern veterinary medicine, the veterinarian has been an important factor in livestock economy through the preservation of animal health. A healthy livestock industry means increased animal work power; increased meat, milk, eggs, and other foods of animal origin; and increased nonfood products, such as wool, leather, and pharmaceuticals. In more recent years, the veterinary profession has been increasingly active in public health functions such as food inspection and control of animal diseases transmissible to man. All of these functions are highly important to CA/MG operations, both in combat and occupation.

Outside of the Army organization, there were two major policy-making agencies concerned with CA/MG activities. One was the Joint Chiefs of Staff (Army and Navy), which referred its problems to the War Department's Civil Affairs Division and the Joint Post-War Committee but, in March 1945, established its own Joint Civil Affairs Committee. These committees were wholly military and considered matters for geographic areas of joint Army and Navy responsibility, as in the Pacific theaters. The other

agency was the Combined Chiefs of Staff (United States and United Kingdom) which in July 1943 created its own Combined Civil Affairs Committee. The latter, with office location in Washington, D.C., and a London Subcommittee (established in January 1944) coordinated civil and military interests in furnishing directives and guidance regarding the administration and government of the civil populations in those geographic areas or countries which were liberated or occupied incident to combined American-British operations, as in the European and Mediterranean theaters. A chief working group of the Combined Civil Affairs Committee was its Supply Committee, created in August 1943; a Veterinary Corps officer was detailed to duty with the latter's Veterinary Working Party. In those military operations carried on by Army alone, or where the Navy or the Allied forces did not participate, the concerned Army theater commander conducted his own detailed planning and established CA/MG pursuant to policy control by the War Department.

MEDITERRANEAN THEATER

Allied Control Commission (Italy)

The Army Veterinary Service with CA/MG in the Mediterranean theater began on 18 August 1943, when one Veterinary Corps officer in the Zone of Interior was selected for such an assignment (*4*). Soon, following the latter's arrival and orientation training in North Africa at Tizi-Ouzou (on 8 October 1943), he came on duty with Headquarters, ACC (Allied Control Commission), as Chief of Veterinary Section, Public Health Sub-Commission, which was established on 10 November 1943, with initial station at Palermo, Sicily. This headquarters organization, or armistice control group as it was commonly referred to, was ordered into existence by AFHQ (Allied Force Headquarters) which had obtained the Italian armistice and an "instrument of surrender" from the Italian Government on 3 September of that year. It must be recalled that by this date the Allied military forces had already cleared North Africa, seized Sicily, and were landing at the "toe and heel" of the Italian peninsula. The ACC was constituted pursuant to the terms of surrender and thus comprised an armistice control agency over the Italian Government. Armistice control was essentially military government but was complicated by the continued operations of a national government, though it had surrendered, and was further confused when the Italian Government announced its standing as a cobelligerent to the Allied war effort.

Headquarters, ACC, was one of two CA/MG organizations in the Mediterranean theater; it was not the first, though it was the only one having assigned veterinary personnel to be organized under control of AFHQ. The latter, it must be recalled, was the American-British command which had directed the assault landings on North Africa on 8 November 1942. There,

veterinary CA/MG seemed to have been unrecognized; in fact, an indeterminable political situation in French Morocco and Algeria, and the interposition of the Office of Foreign Relief and Rehabilitation Operations, U.S. Department of State, had now at the start of the war truly complicated the description of American military responsibility in CA/MG. However, in the planning for Operation HUSKY and following the landings, on 10 July 1943, on Sicily, this responsibility was without question assumed by the 15th Army Group (including the Seventh U.S. Army). This army group utilized its own AMGOT (Allied Military Government for Occupied Territory) organization—the first of such organized in the Mediterranean theater. Then, with the assault landings which were made on the Italian peninsula in early September 1943, the AMG organization set forth the pattern for military government operations in the combat areas of the field armies (including the Fifth U.S. Army) as they advanced northward through Italy.

In the CA/MG operation that took place after the surrender of the Italian Government, the AMG, 15th Army Group, conducted true military government in the combat areas, and, as the armies advanced, AFHQ transferred these areas to "armistice control" by the new ACC which then restored the administration of the respective areas to the Italian Government. This last action took place rather slowly at first because of early weaknesses in the Italian Government in administering the restored areas or before the Allies had captured Rome (in mid-1944), and, of course, the turnover was dependent on the successes of the campaigns against the Germans until their surrender in northern Italy on 2 May 1945. In Sicily and areas on the Italian mainland, the Veterinary Section, Public Health Sub-Commission, of the ACC, originally functioned to supervise, coordinate, and assist the Italian civil veterinary services in their restoration and beginning rehabilitation of the country's animal food and livestock industries. Of course, this was secondary to the primary requirements that the Italian Government must conform to the terms of its surrender and conduct sanitary controls over its food and livestock industries as would not jeopardize the health of the Allied armies and their animals. These veterinary activities related not only to the areas which were under jurisdiction of the ACC but also to a degree in the combat areas wherein AMG had control jurisdiction. The latter had no assigned American veterinary officers, but its headquarters was so integrated after the winter of 1943–44 with that of the ACC in its new location at Naples, and then in Rome, as to permit the Veterinary Section, Public Health Sub-Commission, to function for both; of course, the duality of veterinary affairs was affirmed later when the ACC was assigned technical control over all military government operations.

In those areas restored to the Italian Government, the ACC veterinary functions were originally one of supervisory control; in November 1944, this relationship to the civilian veterinary services was changed. During that month, as the result of continuing progressive demonstrations by Italy as a

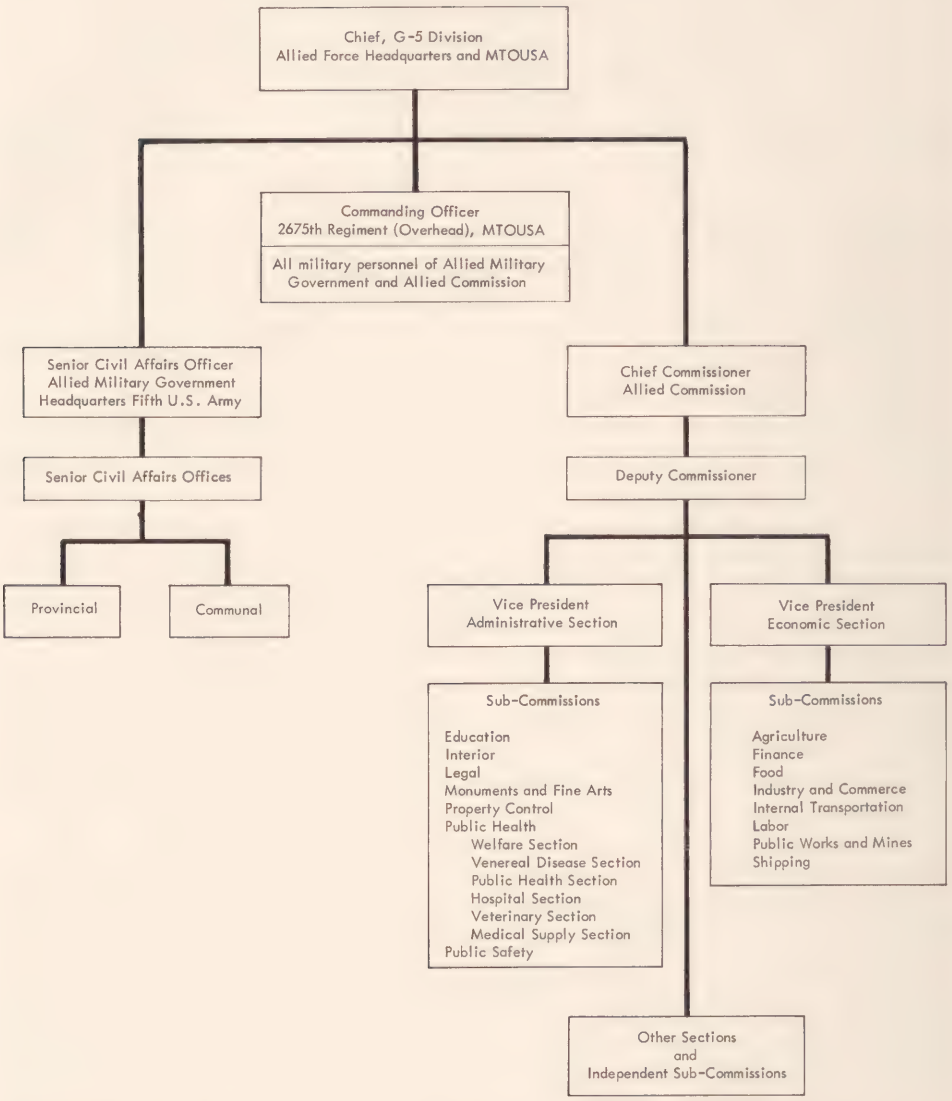
pro-Ally in the war effort, the armistice control group was renamed AC (Allied Commission) and its functions were changed to advisement only. Thus, after that time, the Veterinary Section, Public Health Sub-Commission, acted only as adviser to the government in regard to its veterinary matters in the restored Italian areas and provided such assistance as was requested. Now, supply for rehabilitating the Italian economy became a major AC activity. The cessation of active hostilities (in May 1945) led to the early restoration of more areas to the Italian Government so that by the end of 1945 the latter was controlling all its national territory except in the Trieste area. There, Yugoslavia was questioning an international boundary line. The AC, however, remained operational until its abolishment on 31 January 1947, although the Italian surrender terms which had chartered the agency were not fully terminated until the Allied governments ratified the Italian Peace Treaty on 15 September 1947.

Headquarters, AC, patterned its functional organization of components after the organization of the Italian Government over which armistice control was being maintained. The Veterinary Section was a part of the Public Health Sub-Commission, and the latter, in turn, was only one of several sub-commissions which was headed by a chief or director of the Headquarters' Administrative Section (chart 6). Another chief or directorate section, the Economic Section, included the Agriculture, Forests and Fisheries Sub-Commission, but the latter had little if anything to do with veterinary affairs. The Veterinary Section's officer, as were all U.S. personnel on duty with any CA/MG organization in the area, was assigned for administrative purposes to the 2675th Regiment (Overhead). After January 1944, the Veterinary Section obtained the employment of an Italian civilian veterinarian who accomplished much in establishing working liaison with the Italian veterinary profession.

Civil Veterinary Services in Italy

The functional organization of Italian veterinary affairs at the national level was centered in the Ministry of the Interior, and within that ministry it was a part of the Public Health Division. However, the Ministry of Education regulated the employment of the instructional staffs in the country's veterinary schools. There were no veterinary personnel with the Ministry of Agriculture, and even at the lower, or provincial and communal, levels of government, the veterinarians had little working relationships with agricultural officials. At these lower levels of government, veterinary affairs were handled as an entity separate from, but coordinate with, public health matters, and the provincial veterinarian—one for each province—regulated or supervised the activities of 20 to 50 communal veterinarians. The latter were responsible for the supervision of slaughterhouses, the control and prevention of animal diseases pursuant to the provisions of sanitary police laws and regulations, and the conduct of private practice. Of course, the state

CHART 6.—*Organization of Allied Commission and Allied Military Government, Italy, October 1943 to September 1945*



of socialism that had prevailed throughout Sicily and Italy after 20 years of Mussolini's Fascist rule was now showing in the veterinary service which was not especially efficient, lacked initiative, and was unaccustomed to hard work; the farmers needed, but could not obtain, professional veterinary services.

Until after the capture of Rome (in mid-1944), the AMG and ACC more or less administered the Italian veterinary services in the provinces of

Sicily and southern Italy. The original (or Badoglio) Italian government was scarcely more than a name, without archives and complete ministerial staffs, and it was inevitable that some veterinarians once occupying important positions in the Fascist government organization had fled with the enemy, were removed by Italian patriot groups, or were necessarily dismissed from their offices. The removal of pro-Nazis and Fascists from the Italian Government, was not energetically enforced in Sicily and southern Italy because the Allies did not have the military personnel to conduct local administration and the Badoglio government had not the political strength to reestablish an administration with the personnel who were then available. In fact, the Italian Government soon assumed operational control over screening of its personnel. After the capture of Rome, a new chief of Italian Government veterinary service was appointed, but even this appointment was made temporary, pending the naming of a veterinarian who was politically acceptable.

In Sicily and Italy, animal diseases were controlled, pursuant to national veterinary sanitary police regulations which were promulgated in 1914 and revised slightly in 1932. As was true in other European countries, regulatory enforcement was actually the responsibility of communal police personnel and the local veterinarians who conducted the necessary professional services. Many of the factors involved in the breakdown of regulatory controls during the period of hostilities manifestly continued into the early part of the occupation period, so that animal diseases which once seemed to have been well controlled now presented major problems to the Allied occupation forces. As the result, horses and mules, so urgently needed by the Allied armies and in the Allied programs for restoring the Italian economy, were untested for glanders in fear that they would be destroyed; draft animals, infected with equine epizootic lymphangitis, or food animals with brucellosis and tuberculosis, were kept alive, and diseased animals and anthrax-infected cadavers became sources of food to the human populace. Other factors contributing to the breakdown of animal disease controls were the shortages in communications and transportation facilities and of veterinary supplies, the wartime increases in traffic of animals, and the war weariness of a socialized people in their destroyed country. Under these conditions, and until they could be improved, CA/MG operations were directed only at the restoration of animal disease controls to prewar levels pursuant to the Italian regulations and past practices. Early attempts for improvement (or modernization) of control measures failed as sometimes did local governments in complying with direct orders when given by AMG officers. Generally, there was no change or improvement made in any Italian veterinary activity—or at least nothing comparable to that observed in the postwar occupation of Germany, Japan, and Korea—because the period during which such could be impressed on the country was relatively brief, and,

as shown earlier, the Allied civilian affairs operations were limited after November 1944 to that of advising and assisting the Italians.

The existing veterinary sanitary police regulations and disease control practices of the Italian veterinary service were adequate with regard to only a few animal diseases, particularly those which could be regulated by programs of animal immunization. There were, however, a greater number of other diseases—equally serious and also possessing a public health threat—against which little or no truly effective controls were established. The first group of animal diseases included anthrax, blackleg, and swine erysipelas; the latter group included brucellosis in sheep and goats, equine glanders, bovine tuberculosis, sheep scabies, and rabies. Anthrax enzootics first occurred in two provinces of Italy in which the provincial officials had delayed the reinstitution of annually recurrent programs of animal vaccination. In another province, including the Cassino battleground, a starving civilian population attempted to recover the carcasses of infected animals for food. Swine erysipelas was controlled by immunization with a "living" nonvirulent vaccine. It may be mentioned that the early action by the AC to rehabilitate local Italian Government veterinary laboratories made possible the start of these annual or seasonal programs for animal disease control; frequently, military courier service was made available for delivering the required veterinary supplies in the provinces. Brucellosis of sheep and goats was differentiated from bovine brucellosis by the Italian veterinary service to the extent that the latter was generally disregarded, even after the AC veterinary officer had introduced a vaccinal agent that was being successfully used to control this disease in the dairy industry of the United States. Ovine brucellosis, on the other hand, was granted more consideration, and a locally developed diagnostic test agent (Mirri's brucellin) was used to segregate "nonreactors" from infected milking goats, whose output was required to be pasteurized, or the goats destroyed.

Summarizing, the veterinary service in postwar Italy successfully accomplished a restoration of several animal disease control programs at the level of their prewar standards. However, it manifested no immediate interest in the establishment of more modern controls that would eradicate or completely remove these diseases which would continually threaten the Italian agricultural economy and public health for many more years.

Animals were tested for glanders, but routinely only those showing clinical signs or symptoms of the disease were destroyed; the "reactor" animals were placed in a sort of working quarantine. This kind of control was not effective as a test-and-eradication program but seemed to have comprised the only practical procedure in postwar Italy where the high price and the lack of transport facilities placed each horse and mule beyond any value of animal disease control. Bovine tuberculosis—like brucellosis—was quite prevalent, probably involving 50 to 80 percent of Italy's dairy cows. Only in northern Italy was there any organized program underway for its control

—the program including the segregation of uninfested animals from "reactors" that were shown by subcutaneous tuberculin test to be infected, the vaccination of young cattle with Calmette Guérin vaccine (which possessed a questionable protective value), and the addition of known tuberculosis-free cattle into existent dairy herds. Sheep scabies came into prevalence when the country's supply of nicotine sulfate was disrupted, and farmers could ill afford the high expense of buying this antiscabies dip product in an illicit market. As a substitute, the American technique with lime-sulfur dipping solution was demonstrated and successfully introduced as a means of effectively controlling sheep scabies. Rabies, the last of the diseases to be briefly noted here, became enzootic in parts of Italy; in Rome, alone, 400 suspect cases and 58 laboratory-confirmed cases in dogs were reported in the 12-month period ending June 1945, and 2,000 civilians were treated for dogbite wounds. Military government proclamations were issued for impounding stray dogs, and owners were ordered to muzzle or restrain their dogs by leash. Antirabic vaccine was unavailable at the time, but the procedures which were set forth in the proclamations were sufficiently enforced as to effectively stop the enzootic.

In addition to the foregoing diseases, there were others which, once well regulated or controlled, now reappeared in virulent form among the Italian animal population. The reinstitution of controls was made difficult because of the untimely appearances of these diseases, when communications and transport facilities had been disrupted; furthermore, the local veterinary service was generally unacquainted with the specific diseases or unprepared for organizing effective programs. These diseases included dourine, equine epizootic lymphangitis, hog cholera, Newcastle disease (of poultry), piroplasmosis, and bovine trichomoniasis. Actually, some few diseases such as sheep scab and rabies—previously described—may be included in this group.

Dourine, the syphilislike disease of the horse, was first observed in May 1945 among captured German army horses, but steps were taken early to control rather than to eradicate the disease, which involved the institution of quarantine and treatment for the infected.

Equine epizootic lymphangitis was handled in much the same manner. However, the disease became so commonplace in the Naples area as to require AMG to intervene with regulatory prohibition against the public appearance of diseased animals.

Foot-and-mouth disease (also called aphthous fever), originally reported during May 1944 among dairy herds and a sheep flock in three widely separated places (Taranto, Foggia, and Salerno), gradually spread over an area of 15,000 square miles within four months (fig. 44). This epizootic spread continued into the Siena province, by February 1945, and then by August 1945, into the Perugia, Rieti, and Terni Provinces. The only production laboratory for Waldmann-type vaccine, which was used in Italy, was not uncovered and did not become operational until September 1944;



FIGURE 44.—Ulcerous lesions of foot-and-mouth disease (Rome, April 1945).

but from that time until August 1945, vaccine to immunize 140,000 animals was produced there. The same vaccine was also used to protect animals in Sardinia. However, even though the animals there failed to show immunity, no earnest studies were made to confirm an Italian postulation that the A-strain virus of foot-and-mouth disease was involved, whereas the Italian vaccine was protective only against the O-strain virus. The immunization program was necessarily restricted—due to the limited quantity of vaccine available—to work cattle and dairy herds. Among these herds, the disease mortality rates in the cows and young animals averaged 7 percent and 25 percent, respectively; the abortion rates of pregnant cows approximated 100 percent, and the milk production was reduced by 70 percent for periods up to a month. Beef cattle, other than breeding stock, received little attention because the meat of the infected and dying (or dead) animals was entered into regular trade channels.

Hog cholera—once considered nonexistent in Italy—appeared in virulent epizootic form, first in the Foggia area during April 1944 and then throughout liberated or occupied Italy. In the instance of establishing con-

trols over this disease, the Italian veterinary service accepted the suggestions given by the AC veterinary officer that anti-hog-cholera serum of U.S. origin be imported at once for immediate local use and that the American-developed Boynton crystal violet product be studied for production and distribution by Italian veterinary laboratories for use throughout the Italian swine industry. The results were successful; approximately a half million swine were vaccinated during the 12-month period ending June 1945.

Newcastle disease of poultry—like hog cholera—was regarded as nonexistent in Italy or as an atypical laryngotracheitis; however, confirmatory studies were made of specimens submitted to the laboratory of the Army Veterinary School, Army Medical Center, Washington, D.C. In the control of this disease, which was causing heavy losses in the Italian poultry industry (a mortality of 50 to 100 percent in infected flocks), the Italian veterinarians administered a locally produced vaccine which conferred short-period immunization.

The tick-transmitted piroplasmosis was a common summertime disease among cattle in Sardinia and in the southern and central Italian provinces. Rather than the organization of programs for its prevention, such as are known to be effective, the Italian veterinary service preferred to treat the infected animals. The German-made Acaprin or English Pireven was administered intramuscularly (in a single 6-cc. dose) to infected animals with almost spectacular success.

In regard to the meat and dairy industries, the Italian veterinarian exercised little or no sanitary control over production. Of course, in the situation of food shortages that existed in occupied Italy during the war, animals frequently were not slaughtered in the abattoirs, neither was the meat entered into regular market channels. A great many abattoirs were scattered throughout the country, usually inadequate in their facilities, and the ante mortem and post mortem inspections, when they were conducted, were performed by random selection of organs from various animals for inspection and with no examination of lymph glands. On the other hand, each Italian abattoir was required to operate under veterinary supervision. In the coastal cities, the Italian veterinarian also inspected the fish which were landed, but their standards were not the same as those commonly observed in the American fishing industry. The dairy industry was completely outside the sphere of veterinary activities except for the control of diseases among the dairy herds; in Palermo and in the Italian metropolitan cities, such as Rome and Naples, milk control was invested with non-public health personnel and politicians, but there was no sanitary control. Raw milk, with contaminants of manure and flies clearly visible, was received at the dairies and treated with hydrogen peroxide in lieu of pasteurization. It was bottled or otherwise handled in equipment which had been washed in cold water. In one city, AMG employed a milk specialist and provided such material as was needed to properly operate the local dairy.



FIGURE 45.—Cattle, later used for food, being artificially infected with suspensions of the viral agent of foot-and-mouth disease, injected under the mucous membrane of the top of the tongue to produce vaccine to combat this disease. The rehabilitation of biologic-producing-laboratories in Italy posed a major problem in reestablishing the disease control program against foot-and-mouth disease.

The Italian veterinary biologic-producing laboratories were the focal point for the animal disease control programs which were evolved in occupied and postwar Italy (fig. 45). There were 11 government-owned laboratories and 3 privately owned; all suffered some war damage, but energetic action was taken for their early rehabilitation. This feature of CA/MG operations probably originated in November 1943 when the veterinary laboratory at Palermo was employed in the manufacture of smallpox vaccine for human use in controlling an epidemic of this disease that occured in Naples; by August 1945, smallpox vaccine production in Italian veterinary laboratories had totaled 10 million doses.

Aside from the supply of veterinary biologicals mostly from indigenous sources, veterinary medicines and equipment were urgently needed. In Sicily and southern Italy, the problem was largely one of locating existing stockpiles and arranging for their distribution, but, as the more populous and better agricultural areas were reached, the supply needs had to be satisfied by importations. An American-British Combined Chiefs of Staff supply committee, in Washington, D.C., had previously planned for this

supply, and eventually some shipments of so-called Civil Affairs Division supplies arrived. Unfortunately, the delivery of the first shipment was generally unsuccessful because the material was not specifically marked for veterinary use, was proselyted into regular medical supplies which were being received in quantities below requirements of Italian medical needs, and included items which the Italian veterinarians had little or no use for because of normal variations from American methods of veterinary practice. Following their arrival in Italy, these veterinary supplies were assigned to the Italian Government veterinary laboratories for distribution because this action assured their proper receipt and improved the chances for their reaching the Italian veterinarian in regular civilian trade channels.

Other Civil Affairs and Military Government Operations of Allied Force Headquarters

The same Allied military headquarters that organized the CA/MG operations in Italy also became involved in the planning for Albania, Greece, and Yugoslavia, and participated with SHAEF (Supreme Headquarters, Allied Expeditionary Forces) in the European theater on matters relating to southern France and Austria. In Albania, Greece, and Yugoslavia, the Allied military forces, which were principally British, only entered after the Germans had vacated, and AFHQ, through a newly organized AMG (Balkans), operated as an interim agency to provide emergency relief supplies until the UNRRA (United Nations Relief and Rehabilitation Administration) could assume the supply responsibility. No Veterinary Corps personnel were assigned, although during the period of military responsibility some few veterinary supplies and equipment of U.S. origin are known to have been made available for distribution in the three countries. The foregoing situation was equally applicable to CA/MG veterinary activities in southern France which was invaded by the Seventh U.S. Army in mid-August 1944. Planning for Operation ANVIL-DRAGOON, which was the invasion of southern France, was conducted by AFHQ within the overall policy described by SHAEF; the latter, on 1 November 1944, took over operational control of the military forces in that area from the Allied headquarters of the Mediterranean theater. In the military occupation of Austria, American troop units and personnel of the Mediterranean theater were originally planned for, but when the Third and Seventh U.S. Armies swept through Germany and entered Austria (in the last week of April 1945) the original planning was changed. In fact, as will be observed later, the U.S. military forces in Austria were now created as a semi-independent command within the European theater, but matters relating to occupation and administration of the Austrian civil government were separately reported to the Joint Army and Navy Chiefs of Staff in Washington, D.C.

EUROPEAN THEATER

General Military Government in Germany

Months before the surrender of Germany, the U.S. forces in the European theater were preparing for occupation tasks (*5*). Specific planning for the occupation began in the spring of 1943, when the Allied governments decided on the launching of a cross-Channel invasion in early summer of 1944 (Operation OVERLORD). This decision led to the creation of the strategic planning agency, COSSAC (Chief of Staff, Supreme Allied Command). A Posthostilities Planning Section of COSSAC was designated to consider the responsibilities of the commander in chief after the close of combat. A G–5 staff division was also created in COSSAC to handle military government matters. At the intergovernmental level, EAC (European Advisory Commission), consisting of the foreign ministers of the United States, Great Britain, and the Soviet Union, was organized to make recommendations to the member governments on terms of surrender and occupation matters. The EAC prepared a draft of surrender terms, an agreement on control machinery for Germany, and an agreement on zones of occupation. In January 1944, COSSAC was absorbed into the newly organized SHEAF, and General Dwight D. Eisenhower was chosen as Supreme Commander. The G–5 division was continued in SHAEF and was the hub of all military government planning for Germany.

A German County Unit was formed in March 1944 and prepared a Handbook for Military Government in Germany which became a basic guide for early occupation. In the summer of 1944, the German Country Unit was absorbed into the USGCC (U.S. Group Control Council)—a new planning agency created to prepare for the American component of a future Allied Control Group for Germany. (The Allied Control Council was approved at the Yalta Conference in February 1945 and activated in June 1945.) Operation ECLIPSE was formulated as the plan to be put into effect as areas of Germany were uncovered and at the final surrender. The plan dealt with such matters as terms of surrender, the application of sanctions, the disarmament and disbandment of the German armed forces, the disarmament and control of paramilitary organizations, the safeguarding and disposal of captured enemy material, the trial of war criminals, the control of transportation and communications, the disarming and control of police, the establishment of law and order, the control of governments and military organizations, the institution of military government, the execution of intelligence functions, the control of public information media, the care of displaced persons, and the repatriation of Allied prisoners of war.

While planning for occupation was in progress, experience in military government operations was being gained during combat in Germany. The



Map 10.—Occupied areas of Germany and Austria.

German frontier was crossed on 11 September 1944, and, by mid-December, elements of the First, Seventh, and Ninth U.S. Armies were holding a narrow strip along the western border. Then, after a temporary setback in mid-December 1944 by the German counteroffensive in the Ardennes, the Allies pushed across Germany until she surrendered on 8 May 1945. American forces were scattered over Germany, Austria, and Czechoslovakia but

were soon deployed to the U.S. Zone of Occupation (map 10). All types of CA/MG functions were in operation during combat.

As hostilities on the European Continent drew to a close, arrangements were made to separate the combined headquarters of SHAEF and prepare for unilateral zone command. SHAEF was dissolved on 14 July 1945, and American combat troops were placed under operational control of USFET (U.S. Forces, European Theater). All but the Third and Seventh U.S. Armies were redeployed or made nonoperational. The Third U.S. Army was assigned jurisdiction of the eastern part of the U.S. Zone of Occupation and the Seventh U.S. Army the western part. The Seventh U.S. Army was inactivated in March 1946 and the Third U.S. Army in March 1947. After this time, the American forces designated to preserve order were the U.S. Constabulary.

In accord with the Yalta Agreement, the ACA (Allied Control Authority) was established in June 1945; its executive organ was the ACC (Allied Control Council), made up of the commanders of the four occupying military forces who first met on 30 July 1945. The original U.S. element of ACA was the USGCC, later (on 1 October 1945) redesignated as OMGUS (Office of Military Government, United States). The ACC formed directorates covering broad areas of civilian activity (such as Directorate of Economics). Functioning under the directorates were many technical committees and working groups. Such committees covered every important area of German civilian matters. The general policy of ACA was to consider those matters that had application throughout the country as a whole or which had international aspects. When a decision for action was reached by the ACA, unilateral action was then taken by each of the powers in its zone. In the U.S. Zone, this action was assumed by the Assistant Chief of Staff, G–5, USFET.

By 1 January 1946, military government activities were generally centralized and removed from the occupational activities. Offices of Military Government were created to administer all military government in three military government areas: Bavaria, Württemberg-Baden, and Greater Hesse into which the U.S. Zone had now been divided, and in the Bremen Enclave and the U.S. Sector of Berlin (map 10).

Since V–E Day and before the advent of the top-level administrative agencies, military government control was carried on at Kreis (county), Regierungsbezirke (district), and Land (province) levels by military government detachments which—though operating under the general supervision of ECAD (European Civil Affairs Division) of SHAEF—were attached to tactical divisions. As there was no central German Government left to do the task, the main functions of these detachments were to restore local German governments and to aid them in reviving their general utility and other municipal services. The Germans were very energetic so that the more urgent rehabilitation was accomplished with remarkable speed. As the occupation proceeded, control by military government detachments was increas-

ingly shifted to higher levels of German government, and the type of control was moved from specific matters to broad guidance.[1]

Civil Affairs and Military Government During Combat

Since Germany had overrun all of Western Europe, the Allies were obligated to pay attention to civil matters in these countries during the combat and immediate postcombat phases. Skeleton governments-in-exile for France, Belgium, Holland, Luxembourg, Denmark, Norway, Poland, and Czechoslovakia had been formed in England between 1940 and 1944. SHAEF now created military missions for these governments, each comprised of approximately equal members of British and American military personnel. The missions were organized into sections corresponding to the ministerial elements of the country concerned; they studied the countries and maintained liaison with the governments-in-exile to obtain military intelligence on the conditions under Nazi domination. A Civil Affairs Handbook also was prepared for use of the Allied military forces during the period of administration immediately following liberation of each country. Then, after the Allies invaded the European Continent and pushed eastward into Germany, control by each SHAEF mission was turned over to the respective governments as soon as the country was liberated. All of the missions functioned very effectively both before and after liberation of the countries they represented.

Veterinary civil affairs and military government personnel.—Planning for veterinary CA/MG in the European theater started when six specially trained Veterinary Corps officers from the Zone of Interior arrived in England early in 1944 for assignment to CA/MG duties (*6*). The senior officer of this group was assigned to SHAEF G–5 and for the duration of the war was the nominal chief of veterinary CA/MG activities in the European theater. The remaining five officers were assigned to various SHAEF military missions. Initially, requisitions had been made for 15 veterinary officers for assignment to CA/MG duties at SHAEF, each SHAEF mission, the German Country Unit, ETOUSA Headquarters, Communications Zone Headquarters, UNRRA, 12th Army Group, the field armies, the Army Air Forces Headquarters, and ECAD. Requisitions for these officers, however, were not filled. After D-day, when the field forces requested assistance of CA/MG veterinarians, four of the officers originally assigned to the SHAEF

[1] With the increasing friendliness of the Western Powers toward Germany and the increasing animosity from the Soviets, the former took steps to free their military occupational forces from civil responsibilities and to concentrate on defense against the Soviet threat. The Occupation Statute was promulgated on 21 September 1949, by the Western Occupying Powers as a substitute for the earlier German surrender terms and other Allied policies that were made in 1945. The Statute led to the creation of the German Federal Republic, encompassing the three western zones of occupation, but excluding Berlin. It granted to this area of Germany all governmental powers but reserved the right to maintain Allied troops there for defense purposes. On this same date (21 September 1949) the Office of HICOG (U.S. High Commissioner for Germany) was created under the U.S. State Department, and OMGUS was inactivated, with its civil affairs matters being transferred to HICOG. Thus ended *military* government of Germany in World War II.—E.B.M.

missions were transferred to the field forces. As a result of this redistribution of veterinary officers during the combat period, the single SHAEF-assigned officer had to assume full responsibility for giving whatever advisory services he could to the various organizations in that area.

While the foregoing officers had been oriented in general military government affairs, they had almost no information on European veterinary activities at the time of their arrival in England. Therefore, they took steps to gain such information by reading library material, by talking to English veterinarians, by visiting English veterinary installations (which were fairly representative of continental places), and by talking with exiled European veterinarians. These officers also underwent the minimum general combat training required for all CA/MG personnel.

Veterinary CA/MG operations will be described hereafter from the viewpoint of the organizations to which the officers were assigned. The officer assigned to SHAEF, G–5 Division, directed the technical activities of all veterinary military government officers in the theater. In addition, liaison was maintained with other SHAEF organizations, with the U.S. embassies of Allied countries, with Headquarters, ETOUSA, with Communications Zone, with the three army groups (U.S. 6th, U.S. 12th, and British 21st), with the four U.S. field armies (First, Third, Seventh, and Ninth), with the U.S. Army Air Forces (8th and 9th), and with UNRRA. After arrival on the Continent, the chief military government veterinary officer established contact with the veterinary officials of Allied countries and gave needed assistance and advice.

Because of the limited numbers of personnel available, veterinary officers were assigned only to the SHAEF military missions for France, Belgium, and Holland, and the German Country Unit during the pre-D-day period in England. These officers made plans for administering the civilian veterinary service in the respective countries upon their liberation. Such plans were prepared in the form of civil affairs handbooks. Because of the change of personnel assignments noted above, only the Holland Mission retained its veterinary officer. Holland remained partly occupied by the Germans until almost the end of combat so that there were more serious problems from the lack of a national government. France and Belgium were quickly liberated, and the native governments soon assumed their own administration. The officer assigned to the Holland Mission carried out operations as planned, restoring local veterinary administration, reestablishing temporary national administration, animal disease control, food inspection services, and obtaining emergency veterinary supplies.

The veterinary CA/MG officers helped with the planning while they were in England and assisted in determining requirements and in distributing of veterinary supplies after they arrived on the Continent. Belgium and Holland used more of the supplies than the other countries of northwest Europe. Stocks of captured German army veterinary supplies were

frequently turned over to CA/MG for distribution to Allied and German civilian veterinary service. Close liaison was maintained with UNRRA before and after the invasion to coordinate supplies.

Experiences in combat units.—The single veterinary officer assigned to CA/MG duties with the Communications Zone coordinated various veterinary CA/MG activities in that area. In the conduct of his mission, he was assisted by the Zone's base section-assigned veterinary personnel who reported outbreaks of animal disease, sources of veterinary supplies, and gathered information about civilian veterinary officials. The Army Air Forces veterinarians also were helpful in CA/MG liaison. When the foregoing veterinary CA/MG officer was transferred to Headquarters, 12th Army Group, he directed his efforts toward coordinating the operations of the three veterinary CA/MG officers who were assigned to the field armies of that army group (namely, the First, Third, and Ninth U.S. Armies). He also conducted many field investigations to augment Army personnel.

Those officers assigned to the field armies were in the most forward areas. One of their primary functions was intelligence because they had first contact with the civilian veterinary service, both in Allied countries and in Germany. Information on all aspects of veterinary functions thus obtained was passed to the next higher echelons. Some information, such as presence of animal diseases, was passed to adjacent armies to assist in control measures. The kinds of activities covered every type of CA/MG functions. During the lull along the German border in late 1944, it was possible to complete some operations, but then, in the spring of 1945, when the armies advanced so rapidly, their activities were mostly that of gaining military intelligence. A typical activity of each major function will be cited as an example.

Intelligence.—In the First U.S. Army area, the veterinary officer obtained a Directory of German Veterinarians published in 1939. This gave also the administrative organization of all levels from Reich down to the Kreis, a description of veterinary colleges, listing of veterinary laboratories, livestock census data, military veterinary service, manufacturers of veterinary supplies, and so forth. While some changes had taken place in 5 years, most of the data were still valid. This booklet was soon obtained by the other veterinary officers and served as an important guide for operations in Germany.

Local veterinary administration.—During the German Ardennes counteroffensive, the veterinary administration of Luxembourg collapsed. Veterinarians sympathetic with the Germans had gone over to Germany, while those who opposed the Germans had fled to Brussels. Foot-and-mouth disease was present in the area and it was imperative that control measures be reestablished. The veterinary military government officer with the Third U.S. Army traveled to Brussels, located five refugee veterinarians, and assisted them to return to Luxembourg to control the outbreak.

Disease control.—On 26 October 1944, an outbreak of foot-and-mouth disease was reported on the Holland-German border north of Aachen, then in the combat area of the First U.S. Army. The latter's veterinary CA/MG officer investigated and verified the report. One complication of control was that the site of the outbreak was just behind the front line. German minefields had not been cleared. Many animals were loose. The SHAEF veterinary officer went to the area to direct operations. He first contacted the Holland district veterinarian who, fortunately, was still on the job. Working together, and mindful of combat dangers, they planned and executed the following operations: All Dutch and German veterinarians in the vicinity were assembled with the aid of military commanders and local burgermeisters and directed to evacuate the cattle westward into Holland. Upon arrival at the border, veterinary examinations for disease were made. Diseased animals were destroyed, whereas the remainder were grouped into those suitable for breeding and milking and those suitable for slaughter to feed the civilian population. The breeding and milking animals were kept under observation of Dutch veterinarians who conducted the usual measures for handling communicable diseases. Extensive spread of disease was prevented, and valuable food resources were preserved.

Food inspection.—Slaughterhouses and milk plants frequently showed serious war damage because of their location near railroad yards. Veterinary CA/MG officers assisted in rehabilitating these establishments by supporting actions for the release of needed repair materiel and labor, by contacting local veterinary meat and milk inspectors, and by liaison with other CA/MG officers.

Animal husbandry.—The veterinary CA/MG officers actively cooperated with food and agriculture CA/MG officers in reassembling livestock, controlling the hygiene of livestock sales, reestablishing normal veterinary practice, and advising on hygienic aspects of animal foods and animal breeding problems.

Indigenous veterinary supplies.—During the foot-and-mouth disease outbreak in the Luxembourg area, as previously noted, the local supply of the specific vaccinal agent used in controlling the disease was soon exhausted. This was reported to the SHAEF G–5 veterinary officer who learned that the nearest source of vaccine was a veterinary laboratory in Switzerland. After clearances were obtained from military and civilian officials, the veterinary CA/MG officer with the Third U.S. Army and a Luxembourg veterinarian traveled to the laboratory in a truck and returned with a new supply of vaccine.

Veterinary education.—The first German veterinary college was visited by the veterinary military government officer, Ninth U.S. Army, at Hannover a few days after the city was captured. While the school was badly damaged and classes were not in session, it was found that animal clinics could be operated for treatment of community animals and laboratories could

be used for disease diagnosis and vaccine production. Authority was obtained through CA/MG to continue these types of services.

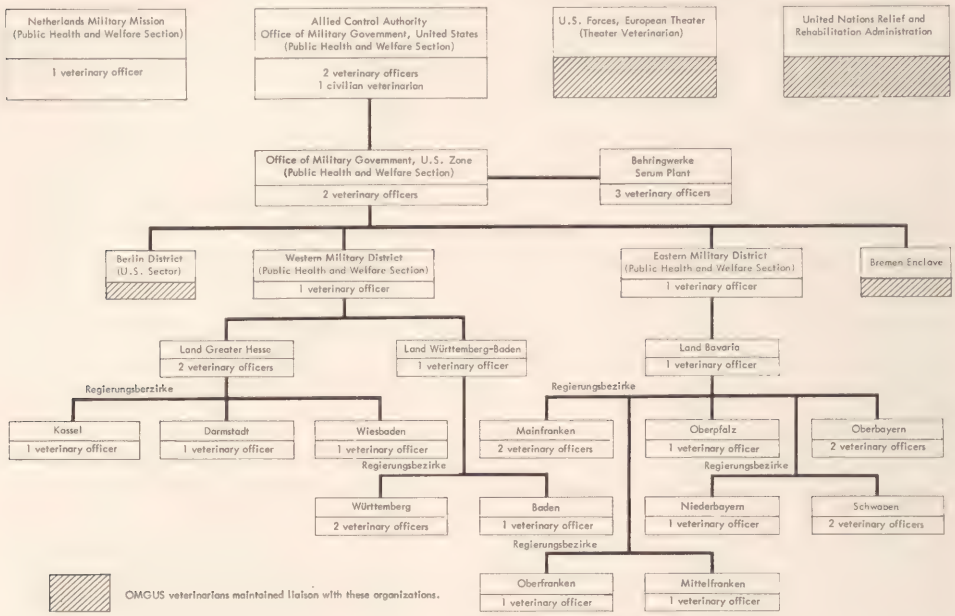
International Institute of Epizootics.—Mention also must be made of the International Institute of Epizootics. This organization, located in Paris, France, was created in 1927 to collect and disseminate information on animal diseases throughout the world. During the Nazi occupation of France, it had continued to operate on a restricted scale. Soon after Paris was liberated, the SHAEF G–5 veterinary officer visited the Institute and learned that it was prepared to operate on prewar level. Prior to D-day, UNRRA had proposed the organization of a veterinary group in Europe to aid in the rehabilitation of veterinary services, especially animal disease control. When the Institute was found to be intact, it was supported by both UNRRA and SHAEF in the continuance of its mission. After the start of occupation of Germany, the chief veterinary CA/MG officer, now assigned to OMGUS, continued to assist the Institute by forwarding German animal disease data.

Civil Affairs and Military Government During Occupation

Upon the collapse of Germany, steps were taken to acquire additional Army veterinary officers for CA/MG. Several officers were reassigned from combat units, from supply units, from the Mediterranean theater, and from the Zone of Interior. Each new officer was given a briefing and a short on-the-job training before taking over his new duties. A total of 31 officers and 1 civilian veterinary consultant from the United States were assigned to military government in ETOUSA. The peak strength was reached in October 1945 when personnel were distributed from the ACA down to the Regierungsbezirke level (charts 7 and 8). Late in 1945, it became obvious that the German veterinary administration would and could carry out the wishes of CA/MG. Thus, a phase-out of veterinary officers—as well as other CA/MG personnel—was instituted over the next few months, starting with reductions from the lower echelons. By June 1946, only three officers remained—two assigned to OMGUS in Berlin and one at the Behringwerk plant. By November 1947, only the senior veterinary CA/MG officer remained. He stayed on until July 1947 when plans for transfer of OMGUS to HICOG were finalized.

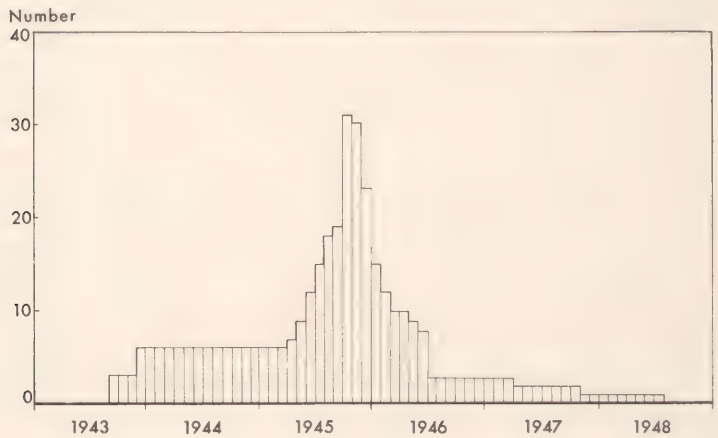
Due to the limited numbers of available veterinary CA/MG officers and to the rapid reestablishment of the civilian veterinary service, the functions of the veterinary CA/MG officers soon became essentially liaison between the German veterinary service and CA/MG. Almost all civilian veterinary functions were desirable, so that the liaison was directed toward rehabilitation rather than revision of them. The officers were assigned as individual specialists in field operations and functioned usually under the public health CA/MG officer. Much liaison was, of course, maintained with other CA/MG officers, especially food and agriculture, education, and general administration. Direct

CHART 7.—*Distribution of veterinary civil affairs and military government officers in occupied Germany, October 1945*



technical contact between veterinary CA/MG officers at various echelons was encouraged and freely used. Reports on the veterinary activities were prepared in all organizations where veterinary personnel were assigned. These were forwarded through CA/MG channels to OMGUS, where summary reports were prepared for publication.

CHART 8.—*Veterinary Corps officers assigned to civil affairs and military government in the European theater, 1943–48*



Allied Control Authority.—Mention has previously been made of the CA/MG policy for occupied territory to maintain the structure of government as little changed as possible. While the national veterinary administration ceased functioning at surrender, two of its technical organizations were permitted to continue: The Reichsgesundheitsant (National Health Institute) in Berlin, and the Paul Ehrlich Institut in Frankfurt am Main used for standardization of biologicals.

In lieu of the national veterinary service there was set up a veterinary group in ACA. This group, called the Veterinary Subcommittee, was originally activated under the Public Health and Welfare Committee of the Directorate of Internal Affairs and Communications, first meeting in session on 17 December 1945. Later (or in February 1946), because so much of the early rehabilitation dealt with agricultural matters, the Subcommittee was transferred to the Food and Agriculture Committee of the Directorate of Economies. Such arrangement continued until the dissolution of the Subcommittee in 1948. Regular meetings were held, monthly and special meetings as required. The Subcommittee was composed of the chief veterinary CA/MG officer of each of the four Allied zones; alternate members sat in the absence of the regular member. The chairmanship was rotated monthly among the delegates, and each delegate had a secretary, interpreters, and advisers, as required. Terms of reference for operation of the Subcommittee were prepared and amended from time to time. While most of the activities were conducted in Berlin, the members occasionally made trips into the field to observe operations at first hand. Activities of the Subcommittee involved all aspects of the German veterinary service; the following are cited as examples:

1. Preparation of special veterinary health certificate for interzonal movement of livestock.
2. Preparation of a dictionary of animal diseases in Latin, English, French, Russian, and German.
3. Collection and consolidation of animal disease statistics.
4. Promoting standardization of veterinary biologicals.
5. Survey of needs, current availability, and production facilities for veterinary supplies (drugs, instruments, biologicals, and so forth).
6. Survey of German veterinary laws to check influence of Nazism.
7. Survey of bovine tuberculosis and control measures.
8. Survey of brucellosis and control measures.

While it was never possible during the military government phase to set up a central veterinary service, the Subcommittee helped to point the way. For example, it arranged for central meetings in Berlin of the chief civil veterinary officials of the four zones. These meetings started in October 1947 and continued until the breakup of quadripartite control in 1948. When Bizonia was formed, it included a German veterinary official who coordinated veterinary activities in the U.S. and British zones.

German Veterinary Service Before Surrender

Before the war, Germany had one of the outstanding veterinary services of the world. The administrative organization was very complete, with official offices at Reich, Land, Regierungsbezirke, and Kreis levels. Before 1934 the national veterinary office was in the Ministry of Agriculture, Lands, and Forests, but in 1934, this office was moved to the Ministry of Interior and designated as Department III. Then, in early 1945, a governmental reorganization saw the veterinary, public health, and public welfare services grouped under a State Secretary in the Ministry of the Interior; however, this organization had little time to function before the collapse of Germany. There were eight sections in the Reich veterinary office, covering major functions. The provincial veterinary office was also located in the Province Ministry of Interior. The Regierungsbezirke veterinary official worked directly under the principal administrator. At the Kreis level, the official veterinarian was called the Kreistierarzt or Veterinærrat. There was usually one official to a Kreis, but larger Kreise sometimes had two or more, and, infrequently, only one would cover two or more Kreise. The Kreis official was the mainstay of the veterinary service since he was responsible for the execution of all major functions.

General veterinary laws were made by the Reichschancelor, and executive regulations were prepared by the Minister of the Interior's Veterinary Department. Lower echelons were not permittted to deviate from the national laws and regulations, except in special circumstances.

As in other countries, the two major activities of the veterinary service dealt with animal health and food hygiene. The former was mainly economic since it dealt with the preservation of livestock resources through animal disease control and related animal health and welfare matters. The latter was mainly human health since it dealt with meat and milk hygiene as related to human food. The two areas frequently overlapped. The principal functions of the German veterinary service, as specified in the Reich laws, dealt with official administration; animal disease control; veterinary police at border stations; veterinary aspects of animal husbandry; administration of animal indemnity funds; knackery service (carcass disposal); animal slaughter and meat inspection; milk hygiene; hygiene of other foods; animal protective service (human matters); examination and appointment of public veterinary officials; examination and licensing of veterinary practitioners; administration of the veterinary professional association; veterinary education; supervision of horseshoeing; operation of provincial veterinary laboratories; operation of special laboratories for research, vaccine production, and so forth; administration of the veterinary drug dispensing laws; and collecting, evaluating, and reporting of veterinary statistics. Some of the more important of these functions will be discussed in the next topic, together with their relation to CA/MG operations.

German Veterinary Service During Occupation

In accord with general CA/MG policy, the German veterinary administration was continued at Province, Regierungsbezirke, and Kreis levels. If the presurrender official was present, he was continued in office; otherwise, the best available substitute was designated. A serious barrier in obtaining officials was the denazification program. At first, the very strict interpretation of Nazi party affiliation caused great difficulty in obtaining cleared personnel because nearly all governmental officials at all levels had been required to join the party by 1939. Later, ACA made a distinction between simple membership and extensive activity in the party. This permitted most veterinary officials to occupy offices. The denazification program did not affect practitioners very much. All Reich veterinary laws were continued as far as practicable in each zone. In the U.S. zone, the officials were very energetic and cooperative in getting the veterinary service reestablished.

It is not practicable to discuss all of the activities of the German veterinary service during the occupation. The following have been selected as the more important and typical ones.

Veterinary personnel.—There were some 7,600 civilian veterinarians in Germany before the war, employed as follows:

Veterinary practice	4,600
Meat inspection	1,040
Public officials	960
Retired and miscellaneous	570
Laboratory and research	290
Education	140
Total	7,600

These numbers were reduced somewhat during the war due to combat casualties and to smaller output of the colleges. In late 1945, the ACA made an agreement in which some 6½ million persons of German blood would be transferred from Austria, Czechoslovakia, Hungary, and Poland into the four zones of occupied Germany. Some of these people were veterinarians; thus, there was no shortage of veterinary personnel during occupation.

The public service operated through a well-organized civil-service system. Before approval for a regular position, the applicant must have graduated from a veterinary college, must have been in general practice for several months, and must have been an assistant in public veterinary service for at least 2 years. Before receiving a license to practice, the graduate must have spent at least 3 months in slaughterhouse inspection and 3 months as an assistant to a practitioner. Licenses were valid throughout Germany.

All veterinarians were required by law to belong to the national veterinary chamber (or union). There were 16 regional chambers and 57 district chambers. The functions of these included investigating legal liability cases, advising on veterinary education, operating courts for alleged veterinary mal-

practice, administering welfare funds and health insurance for veterinarians and their families, and allocating practice areas. During the occupation, all chambers except that at the national level were kept in operation. Only rarely did their activities conflict with CA/MG policies and practices.

Animal disease control.—Animal disease control was based on the Reich animal disease law of 26 June 1909, and amendments. This law covered the usual control measures such as diagnosis; reporting of animal diseases; quarantine; destruction of infected animals; indemnity payments; hygienic disposal of animal products such as meat, milk, and hides; vaccination; hygiene of animal shipments; hygiene of animal markets; and disinfection of premises. At the time of the German collapse, there were interruptions in the normal disease control measures due to lack of a national government, lack of communications, lack of supplies, and displacement of officials. Before long, however, fairly normal measures were in effect.

Many reports and records were used by the Germans in disease control work. All those originating below national level were continued in the occupation. The only one required to be submitted to ACA was the semimonthly communicable disease report. This had been formerly submitted directly to the Reich veterinary office from each Kreis veterinarian. Procedure was now altered to have the Kreis report sent to the Regierungsbezirke veterinarian who prepared a consolidated report. This report was then sent to the Province (Land) veterinarian who transmitted it to the Zone veterinary CA/MG officer. The ACA Veterinary Subcommittee received the Zone reports and prepared a grand summary report somewhat like the former Reich report. The ACA report was sent back to Land veterinarians, to the International Epizootics Institute in Paris, and to the chief veterinary officials of the European countries.

The veterinary border police continued their duties as well as possible, carrying out the former laws. There were great difficulties in view of the free movements of military organizations and materiel and large movements of displaced persons.

While some animal diseases had increased during the war, the quick reestablishment of the German veterinary service after V–E Day brought them under reasonable control. Anthrax appeared in isolated cases but caused no serious problem. Brucellosis of cattle continued to be an endemic disease. Through the efforts of OMGUS, in cooperation with the U.S. Department of Agriculture, the newly developed strain-19 brucella vaccine was made available to the Germans. This enabled them to start a long-range control program. Dourine and glanders of horses were introduced late in the war, when German army horses and captured animals were brought from areas in North Africa, Italy, Poland, and the Balkans. Upon the collapse of Germany, these animals were demobilized and distributed to the civilians. A vigorous testing and examination program prevented spread of the diseases and finally resulted in their eradication. Infectious anemia of horses per-

sisted throughout the occupation despite control efforts. Swine erysipelas increased greatly in the summer of 1945 because combat conditions had prevented the conduct of the recurring spring vaccination program. Through the direct assistance of veterinary military government officers, vaccine and sera were obtained early after V–E Day and greatly assisted in bringing this disease under control. In 1947, an infectious anemia outbreak among the Behringwerke horses caused a temporary loss in the principal source of erysipelas serum. Foot-and-mouth disease continued to plague all of Europe after the war. Intensive control measures by the Germans and CA/MG veterinarians kept reducing the disease, but small outbreaks occurred throughout the occupation from time to time. Germany was more fortunate than some other European countries where the disease was more prevalent. Rabies was not prevalent during the occupation, probably due to general good control of dogs in Germany. Scabies of horses was very prevalent at the end of the war and continued during the first year of occupation before intensive measures brought the disease under control. Hog cholera continued to be mildly prevalent during the occupation. Through the efforts of the OMGUS veterinary officer, techniques for manufacture of crystal violet-attenuated cholera vaccine were introduced into Germany. This new immunization method was used especially in Bavaria. Tuberculosis of cattle in Germany at the end of the war was estimated as high as 30 percent, with certain areas almost 100 percent infected. Immediate widespread test-and-slaughter methods were impracticable. Thus, long-range eradication programs were prepared by the Germans, with the full support of the ACA. Considerable progress for its eradication had been accomplished by the end of occupation. Emphasis was placed upon the pasteurization of milk and inspection of meat as measures for preventing human infection.

Meat inspection.—The inspection of slaughter animals and meat was highly organized and was based on the Reich law of 3 June 1900, as amended. There were some 500 slaughterhouses in Germany before the war, almost all being city owned. The law required that a specially trained veterinarian be the director; this was in addition to the usual veterinary and lay meat inspectors. The law covered the customary functions such as organization, qualification and appointment of personnel, slaughter permits, ante mortem and post mortem inspection procedures, inspection of meat outside of regular slaughterhouses, laboratory examination of meat, inspection of import and export meat, transportation and storage of meat, records and reports, control of Freibank meat, handling of glands used for pharmaceuticals, and supervision of public sale of meat. While the higher echelons exercised general supervision, the Kreis veterinarians and slaughterhouse directors were responsible for routine meat inspection service. In rural areas, where there were no public slaughterhouses, certain butchers were licensed to slaughter animals under the inspection of trained lay inspectors.

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Slaughterhouses sustained considerable aerial-bombing damage during the war because of their usual location near railroad yards. Early occupation efforts were directed toward minimum rehabilitation to get plants in operation. One problem arose in connection with slaughter methods. The law required that large animals be stunned by a captive-bolt pistol, using a blank cartridge. At the beginning of occupation, the ACA prohibited the manufacture of explosives as a part of the demilitarization program. The pistol method requirement of the law was, therefore, overlooked temporarily, and stunning by hand methods was authorized. The OMGUS veterinary officer appealed successfully to the ACA to permit limited and controlled manufacture of the required ammunition.

After a few difficult months early in the occupation, adequate numbers of veterinary and lay meat inspectors became available and were able to carry on relatively normal inspection operations. OMGUS required the submission of monthly meat inspection reports to CA/MG veterinary offices for general information on this activity.

Milk inspection.—Milk inspection was based on the Reich law of 31 July 1930, as amended. Veterinary inspection was limited to health examination of cows, laboratory examination for pathogenic bacteria (tuberculosis), and sanitary inspection of milk pasteurizing plants. The Kreis veterinarian did most of the milk inspection work personally. There were some 8,000 dairy plants in Germany before the war.

Milk plants sustained some war damage, especially in larger cities. Equipment was in poor repair due to wartime shortage of material. Fuel was in short supply. The danger from tuberculosis-infected raw milk made proper pasteurization imperative. Thus CA/MG gave high priority to the rehabilitation and operation of milk plants early in the occupation. Veterinary service as related to milk inspection was soon reinstated to a satisfactory degree. A monthly summary report of veterinary milk inspection from each Kreis veterinarian was required by CA/MG in the early months of the occupation.

Other food inspection.—Various Reich laws required veterinarians to take part in inspection of fish, eggs, game, food plant hygiene, and so forth. Such activities continued in the occupation, with difficulties similar to other control work.

Carcass disposal.—Plants (knackeries) for the disposal of animal carcasses and similar materials were located throughout the country. Products derived were hides, fat for soapmaking, and meat meal for animal feeding and fertilizer. The veterinary service was involved in these operations as a part of the disease control program. The knackeries posed no special problems except for fuel needs in early occupation. Since the products from them were in short supply, priority was given to their operation.

Veterinary laboratories.—Veterinary laboratories were provided for disease diagnosis, food testing, and research and production of biological prod-

ucts. Most of the research and specialized laboratories were operated by the Reich government. Routine disease diagnosis and food testing were done in the provincial laboratories. Veterinary and agricultural colleges also had laboratories for special problems, as did the larger slaughterhouses. Before the war there were 10 national and 34 provincial laboratories.

Despite some war damage, most laboratories were operative. They, too, suffered from short supply of fuel, old equipment in need of repair or replacement, and lack of enough technically trained personnel. Thus, ACA and the German veterinary service gave considerable priority to rehabilitation of the laboratories. In the beginning, most attention was given to the most important functions of the laboratories such as disease diagnosis, food testing, and certain biological production. All research work was deferred.

Veterinary education.—Veterinary colleges were located at Hannover, Berlin, Leipzig, Giessen, and Munich. The schools had excellent facilities and faculties. Admission requirements and curriculums were similar to those in other modern countries. In line with the general CA/MG policy, all schools were closed temporarily at the collapse of Germany in order to survey the influence of Nazi teaching materials and instructors. First attention was given to elementary education and last to universities. Soon after the beginning of occupation, CA/MG surveys were made of the veterinary schools and plans made for their reopening. The policy of the ACA was soon changed to permit full operation of higher technical schools (including veterinary) within a few months. The Munich school had been closed by the Germans in 1939. All of the schools, except Leipzig, had suffered heavy war damage both to buildings and equipment. Because of the very widespread destruction everywhere, there was great competition for repair materials and labor. After some months, however, the schools were repaired for limited operations. During the first year or two, one of the requirements for the students was the donation of labor time for repair work. Many members of the prewar faculties had gone into military service and had been killed or injured. The Nazi influence had been pushed deeply into all educational levels; thus, many instructors were unacceptable to CA/MG. As in the United States, the Germans soon established a policy of giving priority to education of war veterans. Thus there were large numbers of applicants to the veterinary schools but inadequate facilities.

During the war years, world veterinary literature had almost ceased to enter Germany, partly because of lack of outside communication and partly because of Nazi attempts to keep out non-German literature. When the Allied armies entered Germany, a great desire among professional people for outside literature was encountered. In the case of veterinary operations, the OMGUS veterinary officer arranged with the American Veterinary Medical Association, American veterinary schools, U.S. Government agencies, and other organizations to send to Germany large quantities of textbooks, magazines, and so forth. There had been great war damage to German publish-

ing houses and stocks of books. CA/MG gave considerable priority to rehabilitating publishing facilities after several months. The Germans reopened the Munich school later in the occupation.

Veterinary supplies.—Prior to the war, Germany was not only self-supporting in veterinary supplies, but exported considerable amounts. The large chemical industry easily supplied veterinary drugs. The extensive metal industry furnished veterinary instruments. Several large commercial biological manufacturers and some government laboratories furnished necessary biologicals. There was a national biological certification laboratory.

German army veterinary supplies remaining at V–E Day were soon turned over for civilian veterinary use. These provided for minimum requirements during the first few months when industrial production facilities were being rehabilitated. The ACA Veterinary Subcommittee assisted in rehabilitation of veterinary supply production and shipping from production areas to using areas.

Fortunately, biologicals were in ample supply. Before the entrance into Germany, it was learned that a very large commercial vaccine and serum production plant (the Behringwerke) was located at the small city of Marburg in the area to be a part of the U.S. Zone of Occupation. This plant supplied some 80 percent of the medical and veterinary biologicals in prewar Germany. Instructions were given to the combat commanders in the Marburg area to prevent damage to the plant. The plant was captured intact, but several hundred serum-producing horses were killed for food by displaced persons liberated from a nearby detention camp by U.S. troops. A veterinary CA/MG officer was placed in complete control of the plant soon after occupation began, partly because of its medical supply importance and partly because it belonged to the I. G. Farben cartel which was being broken up by ACA policy. This firm, together with smaller commercial biological laboratories and the Land veterinary laboratories, supplied all needed veterinary biologicals except foot-and-mouth disease vaccine. This vaccine had been produced at the Reich Institute on the island of Riems, now in the Russian Zone of Occupation. The Russians had partially dismantled the plant after the German collapse but later permitted the Germans to rehabilitate it to a limited extent. Because of the cutting off of this source of supply, the Behringwerke, with the aid of CA/MG, soon constructed a foot-and-mouth disease vaccine producing department.

Animal husbandry.—The German veterinary service had many activities in connection with livestock raising and care. Some of these were advice and assistance in animal hygiene, feeding, stabling, horseshoeing, artificial insemination, and prevention of cruelty.

All types of livestock decreased during the war years (table 36). This was due to interference of all aspects of animal husbandry activities, although considerable numbers were killed during the bombing and land combat in Germany. The decrease was particularly noticeable in swine and poultry.

The early policy of CA/MG and the German Food and Agriculture officials was to stimulate an increase to approximately the prewar level. This increase was evident even by late 1946.

TABLE 36.—*Numbers of German livestock, 1938, 1945, and 1946*

Livestock	1938 (March)	1945 (March)	1946 (December)
	Thousands	*Thousands*	*Thousands*
Horses	2, 380	2, 200	2, 220
Cattle	15, 840	13, 690	13, 980
Swine	18, 000	7, 140	8, 410
Sheep and goats	5, 950	4, 600	5, 090
Poultry	76, 790	32, 560	38, 920

Source: Official German censuses.

Military Government in Austria

Austria, occupied and integrated into Germany by the Nazis in their Anschluss of 1938, was overrun and liberated by the Allied military forces during the last week of April 1945. Soon after V–E Day, the American combat units that had begun the early restoration of law and order were reorganized under control of the European theater as United States Forces in Austria, with headquarters at Salzburg in the American Zone of Occupied Austria. Austrian civil matters, as contrasted to military occupational activities, now became the responsibility of a quadripartite Allied Control Commission comprised of representative members from Britain, France, Soviet Union, and the United States. The last-named representative, the U.S. Commissioner, Austria, reported direct to the Joint Chiefs of Staff, Washington, D.C. Aside from the four zones of military occupation, quadripartite control was set up in Austria's capital city under the organization of the Vienna Area Command (map 10). Within the organization of the U.S. element, or civil affairs section of the Allied Commission, Austria, matters relating to the sanitary situation among the Austrian meat and dairy industries and the country's animal disease controls were handled by one or more Veterinary Corps officers who were assigned to the Public Health Branch, Internal Affairs Division, and in cooperation with the Agriculture and Forestry Branch, Economic Division. In mid-1946, when military government activities at the level of political states (or Laender) were withdrawn in favor of only a limited, or central, direction of the Austrian Government—pursuant to a new Allied control agreement—the foregoing organization was revised to better conform to the Austrian civil government; public health activities were transferred to the control of the Labor Division, which was redesignated Social Administration Division. At about this time, the Army Veterinary Service with the civil affairs organization in Austria ended.

In the U.S. area of occupied Austria, the civil veterinary profession administered the sanitary operations of abattoirs and the production of milk. As of December 1945–January 1946, the area animal population approximated 73,000 horses, 551,000 cattle, 117,000 sheep and goats, 197,000 pigs, 729,000 poultry (chickens), and 77,000 beehives. Due to shortages of cereals arising as these were diverted to feeding the human population, animals were required to be moved out of the American Zone; in Vienna, the shortages of animal feed became especially critical.

Rabies occurred sporadically for the first time since 1926, and horse scabies —newly introduced—reached enzootic proportions during the first winter months of occupation. Other diseases reported in the Austrian animal population as of June 1946 were foot-and-mouth disease, glanders, swine erysipelas, foul pest, bovine tuberculosis, and a so-called poliomyelitis of swine. Biologicals for controlling these diseases were generally obtainable from a plant in the Russian Zone; other supplies and veterinary equipment were provided through Army supply channels. It may be mentioned, also, that the veterinary profession in the American Zone was numerically a half of that reported in 1939.

PACIFIC THEATERS

Central Pacific Area

In the Central Pacific Area, CA/MG activities first were experienced by the Army Veterinary Service when, following the attack on Pearl Harbor, the Territory of Hawaii was declared under the rule of the Commanding General, Hawaiian Department, as the Military Governor (7). The degree of military government over the Hawaiian Islands was greatly lessened as the war progressed, and, without a doubt, this was not the same kind of military government operation as applied to any other area which was liberated or occupied by the Army. However, one of the first activities undertaken by the Army Veterinary Service following the Japanese aerial attack was the testing of fresh milk supplies in Honolulu for detection of possible sabotage by the addition of bacterial or chemical poisons. This testing was accomplished on request of the Department Surgeon for the purpose of protecting the civil population against mass infection, which necessarily would have involved the utilization of the existent, but limited, Army hospitals and other medical treatment facilities. What occurred thereafter was more descriptive of the antibiological warfare program that soon saw the integration of military veterinary personnel as civilian laborers in key points within the island's dairy plants, ice cream factories, sandwich assembly shops, and soda bottling plants. This veterinary activity, coming into operation on all of the Hawaiian Islands for the remainder of the following period, sufficiently accomplished the primary mission to safeguard the local food supply but also did much more than that. It aided the civilian indus-

tries in keeping their labor, obtaining critically needed equipment and supplies, and adding improvements (some being greatly needed) in sanitary and other quality production techniques. In addition to this, in the capacity of military assistant and adviser to the Office of the Military Governor, the Hawaiian Department veterinarian aided in the maintenance of the civilian food supplies that were now being stored as "reserve," and cooperated with territorial governmental agencies and the civilian veterinary profession in the operation of agricultural quarantines against the introduction of diseases by indiscriminate importations of animals into the Hawaiian Islands. The veterinary officers with the Army garrison commands on Kauai, Maui, Molokai, Lanai, and Hawaii Islands also cooperated with local veterinarians and government authorities in matters concerning civilian food supplies and animal quarantine, and all Army veterinary personnel and supplies would have been made available in the event of need to control any disease enzootic among the civilian livestock population.

Outside of the Hawaiian Islands and until after the assault landings were made on Okinawa (on 1 April 1945), CA/MG operations in the islands of the Central Pacific Area were administered by the Navy. Though there was no central planning for the use of the Army veterinary personnel in such operations, each naval civil affairs administrator or military governor seemed to have requested the assistance of the veterinary officer(s) who accompanied the Army garrison force command which established itself on an island following recapture or seizure from the Japanese enemy. This occurred when the Marshall Islands (Kwajalein, Majuro, and Eniwetok atolls) were seized, after the summer of 1944 when the Marianas (Guam, Saipan, and Tinian) were invaded, and then on Angaur in the Palau groups. Earlier experiences, rather than official information, on Navy planning for the occupation of the Marianas were causes for the Army Veterinary Service to informally prepare to assist the Navy in its CA/MG there. In fact, the Veterinarian, USAF, Central Pacific Area, successfully obtained personnel space authorizations and materiel in the Army garrison force commands for these islands such as were believed needed to satisfy the more urgent demands for Army veterinary assistance. Also, limited quantities of various veterinary supplies and equipment, including some few selected biologicals for the control of animal diseases, were procured from the Zone of Interior and stockpiled by the Army Medical Department, but it was intended that the Navy would procure these for the Army Veterinary Service if the initial Army supply should be depleted in the naval activities. It may be noted that no Veterinary Corps officer was expressly assigned with primary duty in CA/MG in the Central Pacific Area, or even for the Okinawa campaign, so that these CA/MG activities, as well as all military matters within the geological limitation of each island, were conducted under the singular supervision of the headquarters veterinarian of the respective Army garrison force or Army-administered island command. This joining of the two activities was an

exception to basic Army policy that they would be the separate Army responsibilities of two staff groups of personnel (2), but the nature of joint Army-Navy operations in the theater and the extent of CA/MG activities, together with numerous shortages of Army veterinary officers, necessitated that veterinary officers be utilized in this dual capacity.

Army Veterinary Corps officers usually were the only veterinarians available after the Army-Navy-Marine Corps task forces landed in the Marshall-Gilbert, Marianas, and Palau groups. Two civilian Japanese veterinarians were captured on Saipan—formerly Japanese-mandated island—but these were not released from the internment camps for use in CA/MG operations. On Guam, following V–J Day, a veterinarian was brought in from the United States as a civilian employee to supervise the development of a local dairy herd and operation of a milk plant as part of a project of the Federal Economics Administration. On Kwajalein, Guam, Saipan, and Tinian, the Army garrison force veterinarians surveyed the local animal situation, usually supervised the handling of the livestock for the Navy, and treated the animals which were sick, injured, or wounded. In the combat areas, animals frequently were targets of small arms and artillery fire, proved especially troublesome to patrols and guards at night, tangled in the communications wires lying on the ground, and, if confined, were unwatered and nearly starved. They were assembled as soon as the frontline combat situation permitted, examined for physical condition and health, treated as required, and then disposed of in a variety of ways. They were slaughtered for supplying meat to interned civilians and prisoners of war, redistributed to the native civilian population, or established in animal farms. Actually, the animals were so disposed of without reference to any particular policy because military priorities both for new airfield construction and for shipping troops and supplies had reduced the available grazing areas and had prevented the importation of animal feeds; further, base development plans for the postwar civilian economy in these islands were unknown. The inspection and supervision over reclamation of captured Japanese foods comprised another veterinary CA/MG activity, and, on some islands, the native fishing industry was reestablished as soon as problems of military security and facilities, including ice refrigeration, were met.

As might be expected, the livestock populations in the islands of the Central Pacific Area were numerically small, and there were no major meat and dairy industries. In fact, neither the natives nor the Japanese were consumers of much meat (except fish), and the islands were unsuited to support many more animals than were found there after the American landings. Frequently, many animals on the islands were slaughtered by the Japanese military forces during the last few months of their occupancy. For example, on Guam—United States territory which was occupied by the Japanese in December 1941 and then recaptured in 1944—the cattle population had decreased from 4,000 to 1,776, and that of carabao from 900 to 429.



FIGURE 46.—Hog farm belonging to the U.S. Navy-administered civil affairs and military government on Saipan was established and operated under the supervision of the Veterinarian, Army Garrison Force.

As of January 1945, there were also on Guam 69 goats, 688 swine, and 2,512 poultry. The former Japanese-mandate islands of Saipan and Tinian each had 500–700 cattle, 300–500 goats, 100–300 swine, and more than a thousand poultry, when they were captured (fig. 46). On Kwajalein, 50 swine and some few chickens, which had belonged to the Japanese military forces there, were transferred to the native Marshallese, and on Angaur, much the same disposition to the native population was made of few pigs, chickens, and many goats which were captured. In regard to horses, only two were captured on Saipan and three on Angaur.

In addition to the veterinary CA/MG activities concerning livestock and the feeding of interned personnel and prisoners of war, the Army Veterinary Service investigated the local animal disease situation and developed plans for rabies control and the operation of quarantine procedures. Actually, the animals on most islands were shown to be free of diseases that were common to Japan and which might have been introduced by the enemy. Unfortunately, shortly following V–J Day, Guam was selected as the offshore quarantine station to process and test a shipment of Brahma cattle of Indian origin being brought into the United States by the U.S. Department of Agriculture; on request, the local Army veterinary officer supervised the receipt, processing, and shipment of these animals. On Saipan, an enzootic of erysipelas occurred in August-September 1944 and resulted in the loss of

70 swine among a group of 120 before the disease could be controlled. A professional team from the 18th Medical General Laboratory and a U.S. Navy laboratory unit completed an animal disease survey on the same island. Bovine brucellosis was uncovered among native cattle, and liver fluke (*Fasciola gigantica*), tick (*Boophilus* sp.), and common ectoparasites and endoparasites were demonstrated in the various animal species; however, the more serious animal diseases, such as anaplasmosis, glanders, Johne's disease, piroplasmosis, and tuberculosis, were not demonstrated in the animals which were examined.

Okinawa

At about the time the active fighting in the Marianas was over, the Army Veterinary Service in the Central Pacific Area (after 1 August 1944, designated as U.S. Army Forces, Pacific Ocean Areas) was well prepared to assist in nearly any CA/MG activity which would arise in forthcoming campaigns. For the planning of Operation ICEBERG, the Army and Navy assault on the Ryukyu Islands (including Okinawa and Ie Shima) in April 1945, the Navy had transferred its CA/MG to the jurisdiction of the Army. Thus, before the invasion, Headquarters, Tenth U.S. Army, established its own civil affairs staff section, later renamed Military Government Section. The latter was the nucleus of Military Government Headquarters, Island Command, that was formed during January 1945 in the Hawaiian Islands where most of the ground forces were. Military Government Headquarters for Okinawa was assigned responsibility for all civil matters on Okinawa, even in the combat divisional areas of the Tenth U.S. Army. A Veterinary Corps officer was not assigned to this military government organization, however, because its veterinary activities were to be integrated into the overall military veterinary service on Okinawa that would be conducted under the singular supervision of the Veterinarian, Headquarters, Island Command (*8*).

The Headquarters, Island Command, had the personnel and was provided with the equipment such as were needed to meet the needs of all military government activities on the island. In the beginning of the campaign, the Tenth U.S. Army veterinarian cooperated with the Island Command's veterinary organization in caring for and treating captured animals and in inspecting the foods and food animals which were used in the feeding of civilians who were interned. Furthermore, in June 1945, a Tenth U.S. Army veterinary officer was placed on temporary duty with Military Government Headquarters, with station at Ishikawa, to serve as attending veterinarian to the internment camps in the area and certain Okinawan district headquarters. Simultaneously, Headquarters, Island Command, deployed the 145th Veterinary Food Inspection Detachment to military government activities in the Taira district to cooperate in the military government operations of the 6th Marine Division in Tago, P.I. The Okinawa

campaign ended on 22 June 1945, and the number of Okinawans under immediate military control then approximated 200,000.

The functional organization and activities of the civil veterinary profession on Okinawa before the American landings apparently compared with that observed later in the occupation of Japan—the latter having annexed Okinawa in the late 1800's. Only six Japanese-educated veterinarians came under the jurisdiction of military government, and these, in August 1945, were utilized to care for the animals which were assembled and maintained in the internment camps. Interrogations of these personnel indicated that the animal disease situation on Okinawa was better than might have been expected and confirmed the results of preliminary investigations which were made by the Army Veterinary Service. The mallein test of 835 horses showed glanders not to be present, and tuberculin test of 90 cattle and goats showed no tuberculosis although the captured veterinarians had indicated that the two diseases were present—of course, many of the 40,000 cattle that were once present were killed for food by the Japanese during the last year of their occupancy. Boynton-tissue vaccine of U.S. origin was used to vaccinate the local swine population against hog cholera. Anthrax, equine infectious anemia, and rabies were nonexistent, but there were a number of equally serious contagions that were reportedly present, including equine encephalomyelitis, piroplasmosis, scabies, swine erysipelas, bovine brucellosis, and liver fluke infestation.

Ie Shima—another island of the Ryukyu group and situated northwest of Okinawa—was invaded by a divisional element of the Tenth U.S. Army in mid-April 1945, and, before the end of the next month, the Army garrison force veterinarian there had 375 horses, 30 cattle, 60 swine, and 100 goats under his supervision.

Southwest Pacific Area

Generally, the Army Veterinary Service had little or nothing to do with CA/MG operations in the Southwest Pacific Area. In August 1944, GHQ, SWPA (General Headquarters, Southwest Pacific Area), which was an Allied command, added a Civil Affairs Section to its organization which included a health and sanitation component and five other components but nothing directly relative to agriculture or veterinary matters. Similar staff sections were soon established in the field armies headquarters (namely, that of the Sixth and Eighth U.S. Armies) and in Headquarters, USAFFE (U.S. Army Forces in the Far East). In the next month, on New Guinea, the USAFFE command established a parent organizational unit, the Philippine Civil Affairs Division; this division was to organize, train, and otherwise administer Philippine Civil Affairs Units, each with 10 officers and 39 enlisted personnel, such as were to be attached to field armies and the service or base commands. Eight such units accompanied the Sixth U.S. Army in the landings and campaign on Leyte, on 20 October 1944. Eventually, 30

units were organized before the Philippine Islands were completely retaken from the Japanese. These units established civil administration and provided relief supplies to civilians, but as soon as the local combat situation permitted, the civil administration was given up to representatives of the Commonwealth of the Philippines; assistance was provided when requested, but there was no interference with civil operations. The supplies of food provided by the Army were inspected, but beyond this there was no professional activity undertaken by the Army Veterinary Service, such as rehabilitation of the civil veterinary organization or the food and livestock industries in the Philippines. At least one veterinary officer, arriving in New Guinea for eventual assignment in civil affairs duties—pursuant to War Department orders—was ordered into a Philippine Civil Affairs Unit (the 21st) but was utilized as the unit supply officer when the unit was deployed to the Philippines. It was observed that the organization of Philippine Civil Affairs Units was too fixed to permit the integration of veterinary officers, and that: "Nowhere in the SOP (Standing Operating Procedure) of Philippine Civil Affairs has provision been made for rendering to the livestock industry a service similar in nature to what the medical officer will render to the civilian population nor could any high staff officers give * * * any assurance that such consideration was contemplated" (*9*).

As the postwar occupation of Japan got underway, the responsibility for the U.S. program of supply assistance in the area was transferred from the Army to U.S. civil agencies.

As this was taking place, or in August 1945, the Philippine civil affairs organization of Headquarters, USAFFE (now called Headquarters, U.S. Army Forces, Pacific) was abolished, and the concerned personnel were transferred to, or came under control of, the newly created Military Government Section, GHQ, USAFPAC (General Headquarters, U.S. Army Forces in the Pacific). The section included a Public Health and Welfare Division, to which a Veterinary Corps officer was assigned following his arrival, in that month, at Manila, P.I., from the Zone of Interior. Preparations now were well underway for early military occupation of Japan.

Japan

The Army Veterinary Service with military government in Japan and Korea had its start on 7 August 1945, when, in connection with the planning for Operations OLYMPIC and CORONET (or the assault and landings on Kysuhu and on the Tokyo Plain of Honshu), a Veterinary Corps officer reported for duty in the War Department's Civil Affairs Division (*10*). Later in the month, this officer was transferred to, and included in, the Military Government Section, GHQ, USAFPAC, that—as was mentioned in the preceding paragraph—was now being organized at Manila. Of course, the sudden capitulation of Japan (on 14 August 1945) saw major changes in the foregoing plans which had contemplated a kind of military

government operation as was experienced in Italy and continental Europe. As the new Operation BLACKLIST, which established the pattern of the military occupation, got underway, USAFPAC's Public Health and Welfare Division lost its personnel, including the aforementioned veterinary officer (who arrived in Japan on 23 September), to the newly organized GHQ, SCAP (General Headquarters, Supreme Commander for the Allied Powers). These personnel now comprised a newly formed Public Health and Welfare Section which acted as adviser to the Supreme Commander for all nonmilitary medical activities in occupied Japan. The section was headed by a Medical Corps officer as chief of section and was internally organized to include several divisions, one being the Veterinary Affairs Division.

Under the direction of the chief of the Public Health and Welfare Section, the chief of the Veterinary Affairs Division functioned as adviser on veterinary matters which would prevent disease and unrest among the Japanese civilian population; protect the health and further the accomplishment of the mission of the occupation forces; satisfy the minimal or essential humanitarian, public health, and welfare requirements of the civil population; and aid in the repatriation of displaced Japanese. More specifically, veterinary professional and technical recommendations were made (1) with respect to the adequacy of the controls over animal diseases transmissible to man that threatened the military occupation troops and civil populations or that might impair the Japanese livestock and transport animal industries, and (2) as to the efficacy of the country's sanitary control over its meat, dairy, and fish industries. Liaison was maintained with, and professional assistance was provided to, the General Headquarters' Natural Resources, and Economic and Scientific Sections and, within the Public Health and Welfare Section, to the Medical Supply Division. Essentially, only recommendations were made by these headquarters sections to SCAP who alone could order compliance by the Japanese Government; in practice, the Japanese Government was allowed to continue the governing of Japan because, unlike in Occupied Germany, the central government was not abolished nor the country's laws discarded and replaced by true military government by Army personnel; SCAP was established as superior to the Emperor of Japan and the Imperial Japanese Government. This was commonly referred to as indirect military government. The staff's Veterinary Affairs Division was augmented by another officer in November 1945, but the latter was replaced in the summer of 1946 by an American veterinarian employed in a civilian capacity.

Below the level of GHQ, SCAP, there were military government teams which observed or acted as surveillance inspectors of the Japanese Government organizations at the regional level and in the prefectures, including the Tokyo-Kanagawa District. The teams were administered by Headquarters, Eighth U.S. Army (located at Yokohama) or the latter's IX Corps (with headquarters at Sendai) and I Corps (with headquarters at Kyoto),

each having its own military government staff section. (USAFPAC comprised the truly military occupational troops, but it had nothing to do with military government over the Japanese.) A veterinary officer was assigned to the Eighth U.S. Army's military government section in November 1945, and during June 1946, others came on duty with two military government teams, now called the 105th Military Government Group, at Sendai and the 74th Military Government Company, at Sapporo. The SCAP veterinary officer had requested one officer for each of the eight regional military government teams, but this request was denied due to the policy of reducing military government personnel.

The duties and functions of military government veterinary officers in Japan were expressly defined by GHQ, SCAP, as being those "of surveillance of Japanese veterinary and livestock officials to ascertain if the directives of the Supreme Commander are being complied with" and "of giving professional guidance to the Japanese" (*9*). In regard to the first-named function and duty, the following summary notes were added:

> The surveillance responsibility of Military Government Veterinary Officers will require frequent detailed investigations at local levels to determine status of compliance by local Japanese veterinary and livestock officials with the instructions of the Supreme Commander for the Allied Powers to the Imperial Japanese Government. Control of epidemic animal diseases is of primary importance. Personal investigation of significant outbreaks accompanied by civilian officials is necessary in order to determine the efficacy of control measures in effect and the rendition of required reports.
>
> Slaughterhouses, milk plants and dairy farms must be visited in order to determine the existence and adequacy of inspections. The frequency and adequacy of reports must be investigated in order to insure authentic statistical data. Any failure on the part of the Japanese agencies to carry out adequately all instructions will be reported immediately through channels whenever the irregularities cannot be corrected locally.

The basic document relating to civil veterinary organization and activities in occupied Japan was promulgated by GHQ, SCAP, on 30 October 1945 (*12*). By memorandum to the Imperial Japanese Government, the latter was directed to: (1) Inaugurate or reestablish measures for the control of animal diseases and the inspection of meat and dairy products; (2) preserve statistical records relating to animal diseases and to meat and dairy hygiene inspections; (3) prepare and submit special periodic reports on certain contagious diseases, monthly reports on meat and dairy hygiene inspections, and an annual report on the production of veterinary biologicals; and (4) report by the end of the next month on those steps which the Japanese Government had taken to comply. This directive was followed on 18 March 1945, by another to the Commanding General, Eighth U.S. Army, and to military government personnel concerning their supervisory actions and surveillance over the Japanese, who now were to "promptly reestablish a self-sufficient, indigenous veterinary service in occupied areas (*13*, *14*). In so doing, the Japanese veterinary service was to accomplish four objects: "(1) Prevention and control of animal diseases transmissible

to man which might seriously affect the health of the Occupation Forces or the civil population; (2) prevention and control of animal diseases which might interfere with indigenous food supplies or draft animals; (3) inspection of foods of animal origin in an efficient manner; (4) rendition of reports containing reliable statistical data concerning veterinary affairs." In the accomplishment of these objectives, the Japanese activities were only to be under the surveillance of the military government teams who would collect, analyze, and act as field agencies reporting through military channels to General Headquarters; the teams also were to stimulate or insure that the Japanese officials were rendering an efficient service and enforcing the provisions of the directives of SCAP and of their own laws and regulations. Of course, key points and special areas of disease control, meat and dairy hygiene inspections, and veterinary laboratory service and research were described as requiring surveillance. Later in that year (1946), new regulations relating to meat inspection and dairy hygiene that had been adopted by the Japanese Ministry of Health and Social Affairs—on recommendation by the Army Veterinary Service—were promulgated in two Public Health and Welfare Technical Bulletins and set forth as a guide to military government personnel to stimulate the sanitary improvement in Japan's meat and dairy industries (*15*, *16*).

Military government terminated in Japan soon after the signing of a peace treaty on 8 September 1951.

Civil veterinary services.—The functional organization of Japanese veterinary affairs at the level of national government was divided among three ministries: Ministry of Health and Social Affairs (or Welfare), Ministry of Agriculture and Forestry, and Ministry of Education. Also, there was the Japanese army veterinary service, with approximately 5,000 veterinarians, but this was demobilized. At the onset of the occupation, the first-named ministry included a Sanitary Bureau, and the latter, the Veterinary Hygiene Section which regulated the country's meat and dairy hygiene inspection services and conducted laboratory examinations and analyses of food. On the other hand, animal disease control, port quarantine, and licensing of veterinary personnel were handled by the Ministry of Agriculture and Forestry through its Animal Hygiene Section, and its Laboratory Section administered clinicodiagnostic laboratories, animal disease research, and the production of veterinary biologicals. The Japanese Ministry of Education controlled the school or educational phase of veterinary medicine. Below the level of the national government, there were more than 40 prefectures (or kens); the prefecture veterinary service organization was similar to the national organization with its health and welfare section controlling the local meat and dairy hygiene services and the prefecture agricultural section in charge of animal disease control.

Japan's veterinary profession numbered 21,000 members at the start of the occupation period and were regulated as regards their licensure by the

Ministry of Agriculture and Forestry. A license was granted without examination to graduates from universities or colleges approved by and functioning under control of the Ministry of Education, whereas nongraduates could gain license by examination. However, this procedure was being changed, on recommendation of the Japanese Council on Veterinary Education—which was created by direction of military government—so that only graduates would be examined and licensed. There were 23 educational institutions, having a normal student body of 4,000. Two of these institutions were the Tokyo Imperial University and the Hokkaido Imperial University which were the best of their kind in regard to veterinary education in Japan. The others included national and prefecture colleges of agriculture and forestry, private colleges, and a number of prefecture "middle" agricultural schools—the last having minimal entrance requirements and operating an American-type high school course mostly in agriculture. Steps were undertaken to raise the level of veterinary education to more closely parallel that of the Imperial universities and to revise the regular 3-year courses by adding a fourth year in the professional veterinary college curriculum. Many of the graduates were employed on governmental work or by private agricultural groups and conducted private practice in addition to other employment. About a fourth of the licensed veterinarians were members of the Japanese Veterinary Medical Association, which functioned under the control of the Ministry of Agriculture and Forestry; it, as well as professional journals, had become inoperative during the war period, but efforts were undertaken early during the occupation for their revival.

Though Japan is an agrarian country, its livestock industry was relatively a small one. Actually, the Japanese are not consumers of much meat (except fish), probably because the Buddhist religion discourages the killing of animals, and the amount and nature of tillable soil is not adequate to support the pasturage or the raising of cereals for feeding animals. The Japanese requirements and the national interest in sports stimulated the breeding and raising of horses, but, for the most part, horses and cattle were used for draft purposes on the small Japanese farms. There were not many dairy-type cows or meat-producing-type animals, although some few goats, swine, poultry, and rabbits were raised to augment the food supply in certain areas. The war did not result in any serious depletion of the number of animals in Japan except possibly of poultry and swine. The Japanese estimated the livestock population for 1945 as including 1,250,000 horses, 2,320,000 cattle, 180,000 sheep, 250,000 goats, 250,000 swine, 23,000,000 chickens and ducks, and 3,200,000 rabbits. It may be noted that 67,000 to 80,000 horses belonging to the former Japanese army were disposed of by sale to civilians soon after military occupation got underway; however, 30,000 of these were slaughtered (outside of legitimate supply channels) because of the existent shortages in food supplies. Also, the horses were of unsuitable type or in poor physical condition for use on the farms. The

animal disease situation had not reached a critical point when the Allied forces began the military occupation of Japan, even though the normal regulatory controls over animals were curtailed or disrupted by the wartime shortages in facilities and number of personnel. Of course, it must be emphasized that the Japanese islands were not subjected to concerted aerial attacks until after the winter of 1944–45, which ended when the atomic bombs were dropped over Hiroshima and Nagasaki.

The control of animal diseases was the subject of a number of Japanese laws and regulations which were administered by the Ministry of Agriculture and Forestry; however, responsibility for actual law enforcement was decentralized to the prefectural governments. The military occupational forces concerned with military government made no changes in the laws but only conducted a surveillance of each Japanese prefecture official in his manner of performing the prescribed regulatory activities. The most important of the Japanese legal documents was the Law for the Prevention of Infectious Diseases of Domestic Animals, which provided for the actions to be taken when a disease appeared, including quarantine, immunization, sanitation and disinfection, disposal of infected animals and carcasses, reporting, reimbursement to owners of the affected animals, and penalties if the law's provisions were violated. Two other laws expressly concerned the control of equine infectious anemia and bovine tuberculosis, and a Japanese Ministry of Agriculture and Forestry regulation (in effect since 1923) governed the performance of port quarantine of animals at 12 locations. GHQ, SCAP, assumed responsibility to limit any postwar importations of animals in view of the hazards of introducing diseases into Japan and the inability of the Japanese economy to support them. Also, there was an Imperial ordinance for collecting money from the national and prefecture governments and individual owners to pay for these animal disease controls. The principal, or reportable, diseases of animals reported in Japan were anthrax, blackleg, brucellosis (or bovine infectious abortion), equine encephalomyelitis, equine infectious anemia, erysipelas, fowl cholera, fowl pest, glanders, pullorum disease (or white diarrhea of chickens), rabies, scabies, swine cholera, swine plague, Texas fever, and trichomoniasis.

Regulatory sanitary controls over the Japanese meat and milk industries were maintained by the Ministry of Health and Social Affairs, but the actual supervision of the country's meat inspection law (or slaughterhouse law, which was originally promulgated in the 1870's and revised in 1906) and the dairy hygiene regulations (or milk code, which was adopted in 1933) were the responsibility of the local prefecture government. The latter employed the milk inspectors and as many as 625 inspectors who worked in the 712 slaughterhouses throughout Japan. The two industries were made up of a great number of small slaughterhouses and of dairy farms and milk plants, but their total output was relatively small for feeding the Japanese population as compared to the production of the same industries to satisfy

consumer demands in the United States. The estimated output of the Japanese meat industry for 1945 covered the slaughter of 70,000 horses, 120,000 cattle, 30,000 calves, 1,000 sheep and goats, and 40,000 swine, but this was only a quarter of the total number of these animals slaughtered in prewar Japan (in 1941); the country's milk production dropped to 43,000,000 gallons of fresh milk, or less than 50 percent of the quantity recorded 4 years earlier. Usually, the establishments had the facilities to produce satisfactory products, but the state of repair in equipment and the nature of processing procedures were such that the output frequently failed to meet minimal modern sanitary requirements. In the slaughterhouses and meat plants, the Japanese veterinary ante mortem and post mortem inspections were conducted efficiently, but there was no inspection in subsequent meat processing procedures nor were refrigerated facilities available. The cattle slaughter included large numbers of animals that had outlived their usefulness on the farms for draft purposes or as milk producers. Diseases causing condemnations of slaughter animals included actinomycosis, cysticercosis, and distomatosis. In regard to the milk plants, only a small part of their production was pasteurized—or actually boiled—and there was little laboratory control over the product or during its production. The raw milk supply was required to originate from cattle tested and found free of tuberculosis, but the herds, including goats, were not tested for brucellosis unless such tests were requested by the herd owner concerned. Official bacterial standards and butter fat content were prescribed for four types of fresh milk: special, ordinary, manufacturing, and goat milk.

The Japanese veterinary laboratory service was found to be adequate, with greater part of it under government control. There were only a few privately owned laboratories. The Ministry of Agriculture and Forestry operated clinicodiagnostic and biologic-producing laboratories in the prefectures, while the Ministry of Health and Social Affairs controlled the food analytical laboratories. The former agency, through its own Veterinary Laboratory Section, also established research programs on the diagnosis, treatment, and preventive measures of animal diseases, whereas a similar program relating to the sanitary control of foods was conducted in the Laboratory of Veterinary Hygiene, Institute of Infectious Diseases, which operated under the supervision of the Tokyo Imperial University.

Korea

Postwar Korea, or Chosen, as this country was called in 1910 when annexed by Japan, was planned by the Allies for development into an independent sovereign state. Its Allied military occupation was begun in September 1945 when Russian troops entered Korea above the 38th Parallel and American occupational troops under control of the XXIV Corps entered Seoul and the southern area of Korea. The XXIV Corps, later becoming the U.S. Army Forces in Korea, was responsible to GHQ, SCAP. This

occupation of South Korea was terminated soon after the new Republic of Korea was proclaimed (in August 1948), but the Soviet occupation zone developed another political entity at about this late date so that the wartime Allies' objective for a postwar, single Korean state was not reached.

At the start of the American occupation, Headquarters, XXIV Corps, had its own military government staff section which became the Office of Military Governor, U.S. Army Forces in Korea; by January 1946, CA/MG operations were centered in the newly organized U.S. Army Military Government in Korea, with headquarters located at Seoul (*10, 17, 18*). The XXIV Corps Veterinarian originally acted as military government adviser on veterinary affairs in Korea, but, by December 1945, five veterinary officers had arrived for primary duty assignment with the military government organization; other officers were added later. This personnel comprised the Veterinary Department, which was established within the organization of the Public Health and Welfare Bureau, Headquarters, U.S. Army Military Government in Korea, and those who were placed on duty with the eight provincial military government organizations. They were concerned with the control of animal diseases, meat and dairy hygiene inspections, civil veterinary education, laboratory activities and research, and the supply of professional materiel. These civil affairs activities were directly controlled and supervised by Veterinary Corps officers during the early occupation period because the Japanese veterinarians who had once occupied key positions in the Korean veterinary organization now were being repatriated or returned to Japan. Summarizing, the veterinary situation here more or less paralleled that observed in the occupation of Germany where denazification procedures had removed the principal veterinarians from the German civil administration, but it was materially different from that in Japan where military government operated through the existent Japanese civil administration. Later, of course, as Korean veterinarians were brought into a training program and assumed self-governing responsibilities, the Army veterinary officers gradually changed their duties to that of only advising and assisting in Korean veterinary civilian affairs.

Civil veterinary services.—The civilian veterinary profession in Korea at the start of the occupation approximated a thousand members, but many of these were graduates of the 10 or more agricultural schools having veterinary departments that lacked the facilities and faculties necessary for the proper education of veterinarians. The profession's efficiency was further reduced by the shortages in supplies and the losses of Japanese veterinarians who were being repatriated by Japan. In the early civil affairs programs for South Korea, the Army Veterinary Service sought to improve the veterinary educational activities, particularly at the new Seoul National University where Army Veterinary Corps officers were assigned as instructors (fig. 47). Also, Korean veterinarians were trained at various echelons of civil government to replace the Japanese who had once controlled almost



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FIGURE 47.—Veterinary officers with U.S. Army Military Government in Korea pioneered and provided clinical instructional services to students in the new postwar veterinary college at Seoul National University, Seoul, Korea.

all veterinary affairs in Korea. Before these programs got underway, however, the American military governor provided for the organization of a provincial national government and the reestablishment of governmental veterinary services under a new Korean Bureau of Public Health.

Korea's livestock population, in 1943, totaled 35,000 to 50,000 cattle (of which only 2,000 were of the dairy type), one-half million each of sheep and goats, more than a million hogs, and several million chickens and rabbits. No animal census regarding South Korea was reported, although it may be noted that the Japanese had slaughtered many animals during the last few years of the war. Dogs, once important in the supply of food and fur clothing, were totally destroyed, pursuant to a Japanese directive of 1945; also, the former Japanese-owned poultry raising centers about Seoul and Pusan were now practically nonexistent. In the regulation of animal diseases, Japanese laws and regulations were used throughout Korea; in the military occupation period, the Koreans were directed to continue

them. The more serious animal diseases in Korea included actinomycosis, anthrax, blackleg, fowl pest, glanders, rabies, rinderpest, and tuberculosis. Anthrax and blackleg were controlled by the conduct of annual vaccination programs in the enzootic areas, and fowl pest was controlled to a moderate extent by the use of a locally developed chicken-tissue vaccine, administered intravenously. Glanders and rinderpest—normally present in North Korea—were more or less avoided in the American zone of occupation by the initiation of energetic controls. In the instance of rinderpest, the threatened movement of cattle across rivers, when frozen over, at points where there were no regularly operating quarantine stations, brought recognition to this as a wintertime disease. In the period from November 1945 through January 1946, all cattle located in a geographic area, 10–15 miles wide, immediately below the 38th Parallel were vaccinated with a killed tissue vaccine produced in a laboratory at Pusan. Research studies on a new rinderpest vaccine of rabbit-tissue origin were well advanced. Rabies unfortunately appeared and became widespread during 1946, but the shortages in the supply of rabies vaccine made impossible the reinstitution of disease controls at the time. In fact, this as well as certain other biologicals and general veterinary supplies were difficult to obtain because the Japanese sources were no longer available. Considerable efforts were directed toward locating and distributing captured Japanese military stockpiles and for obtaining an early delivery of U.S. Army civil affairs materiel.

In regard to the Korean meat and dairy industries, such sanitary controls as existed were enforced by police authorities with the technical assistance of veterinarians, pursuant to outdated laws and regulations. Approximately a tenth of the 1,500 abattoirs in Korea were city or provincial owned and were operated under the supervision of veterinarians. There were only two milk pasteurizing plants (at Seoul and Pusan) in South Korea; but, other than the periodic testing of cattle for tuberculosis, there was no real sanitary control over the production from dairy farms and goat dairies. During the war years, 10 to 15 percent of the cattle, except native cattle which were not required by law to be tested, were shown to be infected with tuberculosis.

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CHAPTER XIII

Animal Procurement

The Army Veterinary Service concerned with the professional and technical supervision over the procurement and processing of remount animals for the U.S. Army in World War II included as many as 50 Veterinary Corps officers. They were assigned to purchasing boards, remount areas, remount depots, and quartermaster units and organizations in the Zone of Interior and in such oversea theaters as the South and Southwest Pacific areas, the China-Burma-India, Mediterranean, and European theaters. This personnel, included in the organic composition of the worldwide remount activities and organization, provided professional services for, and supervisory care over, 140,000 horses and mules coming into U.S. Army remount depots (including returned animals) and during the tenure of their stay until issued, sold, or transferred. The animals actually procured included the 60,000 purchased in the Zone of Interior, the 6,000 purchased or obtained by reverse lend-lease in Australia, and the many thousands which were captured, requisitioned, or received from the Allied military forces in the China-Burma-India, Mediterranean, and European theaters. In China, animals were procured for the Chinese military forces by a Sino-American Horse Purchasing Bureau whose U.S. veterinary officers were sent into far-distant Tibet. Additional animals were purchased by the U.S. Army in the Hawaiian Islands, New Caledonia, and Fiji Islands.

The Army Remount Service, under the control of The Quartermaster General, was responsible for the procurement of animals and animal feed for the Army; the control over the care, training, and issue of animals at the remount depots, and the supervision of the Army Horse Breeding Plan (*1*, *2*). However, those professional and technical aspects relating to the health and efficiency of animals within the Army Remount Service were matters properly referred to the Veterinary Division, Surgeon General's Office, and were supervised by the veterinary service with purchasing boards, remount areas, depots, and quartermaster remount units.

ANIMAL PROCUREMENT IN THE ZONE OF INTERIOR

For the administration of animal procurement activities in the Zone of Interior, the United States (and its territories) was divided into several remount purchasing zones or areas. Originally, four such zones were described but these, becoming involved in the administration of the Army Horse Breeding Plan after World War I, gave way to remount purchasing and breeding areas, each with an area headquarters. As many as seven such areas were designated during World War II, and their headquarters locations

and geographically defined limits varied from time to time, but by the end of the war only six were named. Each such area included a headquarters veterinarian who was responsible to the officer-in-charge for the conduct of the veterinary service of the remount area (*3*). This included the investigation of the sanitary conditions surrounding the procurement and transportation of military animals in the area, the supervisory control over the veterinary officers assigned to the one or more purchasing boards that may be operating within the area, and the furnishing of professional services for the Army Horse Breeding Plan. Some few headquarters were located in remount depots, but many of them had their own veterinary dispensary facilities where disabled animals from the purchasing boards could be treated or where Government-owned stallions could be wintered and reconditioned for reissue to civilian stallion agents.

During World War II, no major difficulties were experienced by the headquarters veterinarians in the animal procurement programs throughout the remount areas. Dourine was the only disease occurring in the civil horse population that caused a temporary halt to procurement in three States during 1940–41; glanders, mange, and ringworm were unreported. However, equine influenza and the related diseases were observed at many civilian assembly points, but steps were taken to lessen their seriousness. The latter included requests for contractors to furnish clean and suitable sales barns or stables and to assemble their offerings of animals just before the scheduled times of visit by the purchasing boards, which then transshipped the newly purchased animals into the remount depots as soon as was possible. Another action taken to minimize the chances of infection among animals being offered to Army procurement was the naming of as many as 12 to 30 inspection and shipping points within a remount area rather than asking contractors to concentrate any large number of animals at one or two points. This matter was of great importance when mules were purchased because most of them were obtained through dealers; on the other hand, where horses were bought direct from breeders and ranches, these problems did not arise. The "art of bishoping," which made the determination of the animal's age more difficult, and the traffic of rejected animals into the other remount areas was observed in only a few instances. A large number of mules were rejected from procurement on account of deformities of the feet which were caused seemingly by improper or neglectful trimming by the original owners.

In the remount area where animal procurement was not an extensive activity, the headquarters veterinarian also served on the animal purchasing board within that area. Usually, only one such board operated at any time within a remount area; the examination of animals for procurement could be made concurrently on the same itinerary of travel which was followed to inspect the Government-owned stallions standing at stud within the remount area. However, the two together more frequently comprised too great a

workload so that most headquarters veterinarians were furnished an additional veterinary officer who was assigned to the purchasing board.

The quartermaster purchasing board included the Veterinary Corps officer as a board member, who was given the title of purchasing board veterinarian. Under the technical supervision of the headquarters veterinarian of the remount area wherein the board was operating, he conducted the physical examinations on all animals offered for Army procurement and supervised the sanitary conditions under which the animals were collected by contractors and their subsequent handling and shipping by the purchasing board. The purchasing board veterinarian also conducted the mallein test for glanders on all animals, whose ownership actually was not transferred to the Army until the test results became known, and identified the animals in accordance with the Preston brand system. Under the conditions of rapid procurement of large numbers, the animals were identified with a temporary brand (with paint or silver nitrate) at the purchase points and then branded and mallein tested on arrival at the receiving remount depot. In all matters, the veterinary officer was directly responsible to the officer-in-charge or the purchasing officer of the board (*4*).

The veterinary officer's physical examination of each animal was made for the purpose of determining the animal's age, physical condition, health, and soundness, and was followed by a specific recommendation of acceptance or rejection from purchase by the board. This was conducted in a positive, thorough, and systematic manner, without bias of any kind and with the best professional judgment: sometimes, it was made concurrently but usually followed that inspection by the purchasing officer which included the determination of the animal's type, conformation, color, height, weight, sex, and mannerisms as specified in the regulations of the Army and procurement documents (*5, 6*). The procedures and the physical health standards used by the Army Veterinary Service during World War II were quite similar to those originally developed in 1918.

During World War II, or for the calendar years 1940 through 1945, the Army Veterinary Service examined 129,949 horses and mules for procurement; of this number, 60,230 (or 46.35 percent) [1] were recommended for acceptance (table 37) (*7, 8*). Rejections totaling 18,085 animals (or 13.8 percent) were made on account of improper age (3,911) and a variety of pathological disqualifications such as diseases of bone and the organs of locomotion (approximately 8,100 animals), diseases of the nervous system and the organs of special sense, particularly the eye (1,700 animals), wounds (1,200 animals), diseases of the skin and cellular tissue (1,200 animals), and infectious and parasitic diseases (1,000 animals), mostly equine influenza and related diseases of the so-called shipping fever group. The remaining number of

[1] This acceptance number compares favorably with the Quartermaster Corps information (*18*) on the procurement of 56,926 animals (26,403 horses and 30,523 mules) in the fiscal years 1941–45.

unaccepted animals included rejections which were made on account of improper type or class of animal as determined by the purchasing officer.

TABLE 37.—*Veterinary physical examinations conducted on mules and horses procured for the Army in the Zone of Interior, by year, 1940–45*

Year	Animals examined	Animals recommended for acceptance	Animals recommended for rejection
	Number	*Number*	*Number*
1940	39, 112	18, 545	6, 390
1941	31, 853	13, 565	5, 657
1942	14, 224	7, 219	1, 564
1943	20, 260	10, 746	2, 254
1944	17, 514	7, 368	1, 587
1945	6, 986	2, 787	633
Total	129, 949	60, 230	18, 085

Sources: (1) Annual Report of The Surgeon General, U.S. Army. Washington: U.S. Government Printing Office 1941. (2) Reports, Veterinary Division, Surgeon General's Office, 1942–46.

REMOUNT DEPOT SYSTEM

The remount depot system operated under the control of the Army Remount Service as the intermediary between the animal purchasing boards and the mounted units of the Army. The onset of World War II found this system in the Zone of Interior as comprising three permanent quartermaster remount depots; these were located at Front Royal, Va., Fort Reno, Okla., and Fort Robinson, Nebr. Their holdings, as of 1 July 1940, totaled 861 animals. A fourth facility was acquired during October 1943, when the Kellogg Arabian Nursery, received as a donation, was established as a quartermaster remount depot at Pomona, Calif. (fig. 48). Other than the depot at Pomona, which became the U.S. center for the furtherance of the Arab breed of horses and was integrated into the Army Horse Breeding Plan, the depots were operated mainly for the purposes of receiving remount animals from the purchasing boards and maintaining them during the periods of their processing, conditioning, and training prior to issue to mounted units and organizations. Including the newly purchased remounts and the animals which were returned from Army camps and the units which were dismounted during the war, the animals coming into the four depots approximated 100,000 animals. In connection with the remounts, the depots alone were specially equipped and organized to process animals with a minimal amount of so-called administrative losses,[2] estimated not to exceed 3 percent of the number of animals newly purchased (*9*, *10*, *11*).

[2] The cumulative administrative losses for the period from 1 July 1940 to 30 June 1942, covering the processing of 29,930 horses and mules in the remount depots, was 2.27 percent.



FIGURE 48.—Veterinary dispensary and horse-breeding building, Headquarters, Western Remount Breeding and Purchasing Area, Pomona, Calif.

The remount depot requirements of World War II were met with the expansion of the existent facilities at Front Royal, Fort Reno, and Fort Robinson to capacities for 12,500 animals (*12*). This expansion was started after the fall of 1940 when the Office of the Quartermaster General announced plans for processing 28,860 animals for the Army, including the National Guard that came into active military service, during the remainder of that fiscal year ending 30 June 1941.

Outside of the reception, processing, and issue of animals, the remount depots also functioned as centers for breeding animals that would demonstrate the type animals most desired by the Army, aided in the operations of the Army Horse Breeding Plan, and conducted programs of research on animal diseases (*13*). These several operational activities were a guide to the operational organization of the depot's veterinary service (*14, 15, 16, 17*) which included the depot veterinarian under whom a veterinary hospital was operated. The depot veterinary hospitals were authorized stall capacities equal to 10 percent of the depot's animal strength, but, as of December

1941, they aggregated 233 hospital stalls and another 48 on loan against total animal strengths of 10,000 in the three remount depots. The depot's veterinary service was further divided into a section of receipt, quarantine, and issue; a breeding and nursery section; and another concerned wth the medical supplies, food inspection for the depot command, and the inspection of animal feeds and forage. The depots also were sites for veterinary officer replacement pools and were centers for training in remount operations. The actual operational personnel of remount depots reached a peak of 20 veterinary officers and 200 enlisted personnel.

The veterinary service was continuous during the tenure of stay of the animals in the remount depots. The incoming animals were inspected at the time of their unloading from railroad cars or trucks and then were placed in specially selected corrals where they were maintained in quarantine status for 21 days under veterinary supervision. During the quarantine period, the remount animals were identified against the original purchase descriptions, and their temporary identifications (made by purchasing board veterinarians with white paint or silver nitrate) were replaced with the actual Preston brands. If not mallein tested for glanders before shipment into the depots, the animals were so tested, and again at the termination of the 21-day period. Including those also conducted on animals before shipment from the depots, the number of mallein tests that were conducted at the Fort Reno and Fort Robinson depots during World War II alone aggregated more than 200,000. Glanders did not become the disease problem of remount depots such as was experienced in previous wars and actually was reported only on two occasions. One involved a suspect clinical case noted at Fort Robinson during February 1942 but was not confirmed by intradermic mallein test or the laboratory complement-fixation test on samples of the animal's blood serum. The other involved 21 animals at Fort Reno that reacted as suspects to the intradermic mallein test; of these, 8 animals were positive to the complement-fixation test and were destroyed.

Equine influenza and related respiratory disorders occurred with great frequency and resulted in the need to hospitalize large numbers of animals for relatively long periods of time. For example, equine influenza and pneumonia accounted for 58.2 percent of the total cases of disease and injury reported at Fort Reno during the period from 8 September 1939 through 31 December 1941. However, the medical era of sulfonamide therapy was just beginning, so the case fatality rate at all depots was kept moderate. Then, as the war progressed and animals coming into the depots mainly included "seasoned" animals which were being returned from camps or dismounted units rather than "green" remount animals, the respiratory disease rate declined. At this late period of World War II, the incidence for injury exceeded that for disease. In fact, the only significant diseases appearing among depot animals in this late period was equine infectious anemia and a peculiar kind of toxemia which was named forage poisoning, at Fort Robinson. Table 38 shows the

numbers and rates of animal disabilities experienced by the Army Veterinary Service at two remount depots.

TABLE 38.—*Sick and wounded animals of the Fort Reno, Okla., and Fort Robinson, Nebr., Remount Depots, 8 September 1939 to 31 December 1945*

Period	Average animal strength	Incoming animals	Animals issued or sold	Admissions for disease and injury			Died or destroyed
				Total	Disease	Injury	
	FORT RENO REMOUNT DEPOT						
	Number	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*
8 Sept. 1939–7 Dec. 1941	3, 261	15, 763	11, 045	5, 807	4, 668	1, 139	495
8 Dec. 1941–15 Aug. 1945	9, 029	38, 605	34, 871	14, 028	7, 356	6, 672	770
16 Aug. 1945–31 Dec. 1945	7, 424	1, 665	4, 039	552	186	366	13
Total	6, 885	56, 031	49, 955	20, 387	12, 210	8, 177	1, 278
	FORT ROBINSON REMOUNT DEPOT [1]						
				Rate [2]	*Rate* [2]	*Rate* [2]	*Rate* [2]
8 Sept. 1939–31 Dec. 1939	1, 324	763	509	2, 021. 8	1, 645. 5	376. 3	29. 5
1 Jan. 1940–30 June 1940	983	75	845	1, 147. 6	722. 3	425. 3	20. 4
1 July 1940–31 Dec. 1940	2, 606	7, 287	2, 108	1, 993. 5	1, 714. 2	279. 4	100. 5
1 Jan. 1941–30 June 1941	3, 334	3, 063	5, 053	956. 9	719. 3	237. 6	61. 8
1 July 1941–31 Dec. 1941	3, 747	1, 535	1, 532	964. 6	668. 7	295. 9	62. 1
1 Jan. 1942–30 June 1942	3, 781	4, 435	316	634. 3	331. 0	303. 3	42. 2
1 July 1942–31 Dec. 1942	9, 085	3, 345	571	401. 8	191. 3	210. 5	39. 4
1 Jan. 1943–30 June 1943	11, 403	5, 092	1, 706	350. 5	194. 7	155. 8	77. 4
1 July 1943–31 Dec. 1943	10, 913	1, 866	2, 176	284. 8	146. 2	138. 6	86. 5
1 Jan. 1944–30 June 1944	8, 103	3, 902	4, 955	333. 2	167. 6	165. 6	86. 6
1 July 1944–31 Dec. 1944	8, 688	5, 637	4, 778	354. 9	176. 5	178. 4	97. 1
1 Jan. 1944–3 Sept. 1945	9, 444	3, 370	3, 137	345. 2	164. 6	180. 6	69. 4
4 Sept. 1945–31 Dec. 1945	8, 459	71	4, 288	201. 4	90. 0	111. 4	56. 0
Total	6, 471	40, 441	31, 974	480. 5	290. 6	189. 9	71. 4

[1] The arrival of animals into the Fort Robinson depot influenced the trend of the morbidity rate to the extent that newly purchased remount animals are demonstrably more prone to disease than the "seasoned" animals which may be returned from the Army camps and dismounted units. In this connection, mention must be made that the arrivals comprised remount animals only, for the periods, 8 Sept. 1939–31 Dec. 1939 through 1 July 1941–31 Dec. 1941. After the latter period, arrivals included both remount animals and a somewhat greater number of returned or "seasoned" animals.

[2] Animal rate per 1,000 animal strength.

The prophylactic inoculations made against equine encephalomyelitis, tetanus, and anthrax comprised a large part of the veterinary workload in the remount depots; at Fort Reno and Fort Robinson these aggregated more than 200,000 inoculations during the war period. For example, as a part of the annual vaccination program against equine encephalomyelitis that was developed for Army horses and mules in the Zone of Interior beginning in 1938,

the Army Veterinary Service vaccinated (and revaccinated) the animals being maintained in the depots during each spring-summer season. At the two depots just named, 124,305 inoculations were made against this viral disease. The inoculations with tetanus toxoid, including the initial double injection and the stimulating (or booster) dose, totaled 81,242 at Fort Reno and Fort Robinson. The latter were a part of the protective vaccination program—of Army-wide application, started in early 1941—that was taken to give permanent immunity against tetanus and replaced the former use of antitetanus toxin in special cases of traumatic wounds.[3] The third group of inoculations—single doses of intradermic anthrax spore vaccine—against anthrax was started at the depots in 1944 when the Veterinarian, China-Burma-India theater, asked that animals shipped into that theater be previously immunized against anthrax. Up to the end of 1945, the Fort Reno and Fort Robinson depots had made 12,628 such inoculations.

The same quarantine procedures and such prophylactic immunizations as were indicated were applied to horses and mules which were returned from camps and dismounted units. In fact, beginning in 1942, the processing of returned animals became as great an activity as had been the processing of newly purchased remount animals during the first few years of World War II, although mule procurements were undertaken during the later period when horse buying had been stopped. The remount depots thus became reservoirs of large numbers of animals surplus to military needs. Under these circumstances, the Front Royal depot was almost closed out by mid-1944 when many of its animals were transshipped to Fort Robinson or issued to a mountain division at Camp Swift, Tex., and the remainder were disposed of by sale. With this trend, the average animal strength at Fort Robinson increased from 3,781 for the first 6 months of 1942 to 9,085 for the next 6 months and remained at about that level for the succeeding 3 years. The animal strength of the Fort Reno depot was 9,029 for the war period, as contrasted with the average of 3,261 animals therein during the period from September 1939 to 7 December 1941.

After the termination of their 21-day quarantine and processing, the animals were reinspected at regular intervals. At any time, sick and wounded animals were removed from the corrals to the depot veterinary hospital for care and treatment. Preparatory to issue or sale, the animals were mallein tested and physically examined. It was an inviolate rule that no animal would be shipped from the depots unless it was sound, healthy, and particularly free of diseases of the respiratory system, and ringworm or other diseases of the skin. The depot veterinarians and the depot commanders together reviewed the last-minute preparations on the issues and sales of 88,000 or more horses and mules from the depots during World War II. This number (for the fiscal years 1941–45) included 49,600 issued (or reissued) in the Zone of Interior,

[3] Only one case of tetanus was reported among animals in the remount depots during World War II. This involved a remount animal 3 days after its arrival at Fort Reno and before vaccination against tetanus was begun. The case was successfully treated with antitetanus toxin.

7,800 issued for oversea supply, 4,000 issued to the Coast Guard and other armed services, 300 issued to foreign governments, 3,507 supplied on lend-lease to the United Kingdom, 17,000 sold (excluding 9,400 animals which were sold at Army camps or by the Coast Guard), and 6,500 dying or destroyed within the depots (that is, administrative losses) (*18*). The animals within the remount depots on 30 June 1945, totaled 16,992 (or 12,454 mules and 4,538 horses).

OVERSEA THEATER REMOUNT OPERATIONS

Remount operations comparable to those conducted in the Zone of Interior came into existence in the South and Southwest Pacific Areas and in the China-Burma-India, Mediterranean, and European theaters. The mobilization planning relative to such operations in a war theater, that was undertaken during the peacetime years preceding World War II, was centered on the study of two types of quartermaster field units, the remount squadron and the remount troop. The remount troop was developed before World War II as a unit capable of receiving, conditioning, and issuing 400 animals and was designed primarily to establish and operate a so-called army corps remount depot. Three or more such troops were to be joined to form a remount squadron which was designed to operate a field army's remount depot (of 1,200-animal capacity) or a depot (of 7,200-animal capacity) in the area behind the army or communications zone. The units' organic veterinary detachments were equipped to establish veterinary dispensaries within these depots, but their primary mission was not so much the treatment of disabled depot animals as it was to maintain the depots free of disabled animals—these being evacuated to veterinary hospitals outside of the depot area (*19*, *20*). The experiences of the Army Veterinary Service in World War I had shown that the remount depot was no place for disabled animals.

These two quartermaster remount units—the squadron and the troop—were continued in the organization of the Army throughout World War II.[4] However, pacing the developments in the dismounting of the Army and the streamlining of tactical forces that had taken place during the 1930's, these units were removed from the type field armies and army corps. In fact, the beginning of the war found them classed as reserve units which would be deployed only where specifically needed. At this time, the internal organization of the remount squadron was standardized as comprising a squadron headquarters, four operational elements or troops, and a veterinary detachment of 5 officers and 24 enlisted personnel; it was designed to operate a field remount depot of 1,600-animal capacity (*21*, *22*). The troop as a separate unit could operate a 400-animal depot and was organized to include a troop headquarters and a veterinary detachment of one officer and seven enlisted personnel (*23*,

[4] During the war, two small cellular teams or detachments were developed and described in a new T/O 10–500: Team B1 or Remount Detachment, and Team BJ or Augmentation Remount Detachment. The former could operate a 100-animal depot, which could be expanded into a 200-animal depot if joined by the augmentation unit; neither included attached veterinary personnel.



FIGURE 49.—New shipment of American mules in the corrals of the U.S. Army Remount Station, Grosseto, Italy, 25 April 1945.

24, 25). While a number of these type units were activated in the Zone of Interior, only two troop elements of remount squadrons were sent overseas—one to the South Pacific Area, but this unit was returned as a "paper organization" and then redeployed with the second unit to the China-Burma-India theater. Other oversea requirements for such units were met with the additional activations of two squadron troops and two separate troops within the South and Southwest Pacific Areas and the China-Burma-India theater.[5] In

[5] These units included the following: Troop A, 251st Quartermaster Remount Squadron, activated in November 1942 in Southwest Pacific Area and disbanded in August 1944. Troop B, 251st Quartermaster Remount Squadron, activated in February 1943 in the South Pacific Area, utilizing personnel and equipment of Troop A, 252d Quartermaster Remount Squadron, which was returned during January 1943 as a "paper organization" to the Zone of Interior, and inactivated in October 1944 in the South Pacific Area. Troop A, 252d Quartermaster Remount Squadron, activated in May 1941 in the Zone of Interior, deployed to the South Pacific Area during May 1942, returned to the Zone of Interior as "paper organization," and redeployed during April 1944 to the China-Burma-India theater where it was redesignated on 1 January 1945, as the 475th Quartermaster Remount Troop, which was inactivated in February 1946 in the India-Burma theater. Troop A, 253d Quartermaster Remount Squadron, activated in March 1943 in the Zone of Interior, deployed in fall of 1944 to the China-Burma-India theater where it was redesignated the 476th Quartermaster Remount Troop, which was inactivated in December 1945 in the India-Burma theater. 698th Quartermaster Remount Troop, activated in July 1944 in the China-Burma-India theater and inactivated during November 1945 in the India-Burma theater. 699th Quartermaster Remount Troop, activated in July 1944 in the China-Burma-India theater and inactivated in February 1946 in the India-Burma theater. (The 528th Quartermaster Remount Troop, activated in December 1942 and disbanded in July 1944, was not deployed from the Zone of Interior.)

the European and Mediterranean theaters, the remount activities were organized under locally improvised depot organizations which followed the pattern of the typical field unit (fig. 49). Each such quartermaster remount squadron element, troop unit, and provisional organization had its own organic veterinary detachment.

Southwest Pacific Area

The Army Veterinary Service in the Southwest Pacific Area had its start with remount activities in April-May 1942 when the Quartermaster, U.S. Army Forces in Australia, requested the inspection of Australian Army animals at Goulburn, Australia, as to their suitability for riding or pack purposes (*26*). During the next 6 months, a horse-buying program was conducted, and 2,515 Army horses were transshipped from Australia to New Caledonia (in the South Pacific Area) (*27*, *28*). With the exception of the single shipment of 477 horses on a U.S. animal transport which was accompanied by a Veterinary Corps officer, Australian personnel, including a veterinarian, were employed to assemble and transship these animals to New Caledonia.[6]

Just as this buying program in Australia was nearing completion, another was started in connection with plans to activate several quartermaster pack troops and field artillery pack battalions within the theater (*29*, *30*). Requirements were set as high as 18,000 mules and horses, and, by the end of 1942, the U.S. Army Horse Purchasing Board (including a veterinary officer who soon became the board president), with station at Toowoomba, Queensland, had procured 216 horses and shipped 194 of these to a remount depot which was being established at Townsville. During the early months of 1943, the original planning on the use of pack troops and artillery battalions in the fighting on the jungle islands of the Pacific was abruptly cut back, and the objective of the buying program in Australia was reduced to 3,550 horses. These were transshipped from purchase points by railroad to Townsville where they were processed for issue. The mules, unavailable in Australia, were requisitioned from the Zone of Interior, but the two mule-mounted units which came into the Southwest Pacific Area were refused entry by Australian public health and animal regulatory officials on their expressed belief that the mules might introduce such diseases as equine encephalomyelitis, equine infectious anemia, and glanders. Instead, the two units—the 98th Field Artillery Battalion and Troop D, 16th Quartermaster Squadron—were diverted to New Guinea.

[6] Nine shiploads, totaling 2,048 horses, were loaded out of Brisbane, Melbourne, New Castle, and Sydney, Australia, on the Australian S.S. *Jansenn* during the period from 6 May through 30 November 1942. The shipment of 477 horses on the U.S. Animal Transport *Tjinegara*, departing on 20 July 1942, from Brisbane, was lost by enemy action against that transport (on 26 July 1942). While en route to Noumea, New Caledonia, the animal losses, on account of disease and injury, on the S.S. *Jansenn* totaled 16; thus, only 2,032 horses of Australian origin were received in the South Pacific Area.

The horse buying in Australia was halted during May 1943, although depot receipts of newly purchased horses were continued until mid-June 1943. The rate of procurement had been slowed down by seasonal rains, the distances of travel between purchase points even though an airplane was used, and the earlier limitations that only broken (or trained) horses be procured (*31*). Of course, the remount depot at Townsville had to be built and expanded and, lacking sufficient numbers of experienced personnel, could not receive any large numbers of untrained horses until after the spring of 1943. Incomplete reports indicated that 68 percent of the horses examined in Australia were accepted for Army procurement.

The Remount Depot, Townsville, was an operational facility of Troop A, 251st Quartermaster Remount Squadron, which was activated during November 1942. The depot was built largely through the labors of veterinary personnel (*32*), and, for many months (November 1943 through April 1944), its animal population averaged more than 3,200 horses and a few burros or donkeys. Through June 1943, the remount depot received approximately 3,600 newly purchased animals; later in that year, 1,200 animals, which were previously issued to mounted units, were returned. Including a veterinary detachment within the depot unit, a veterinary dispensary was established, but this was operated as a type of a veterinary hospital which cared for the depot animals as well as those more seriously disabled among the few mounted units which were stationed in the vicinity of the depot. Attempts to gain a separate veterinary hospital outside of the depot area, that would operate in support of the remount depot's and other unit's veterinary detachments, were not approved by the theater headquarters (*33*). Instead, the depot veterinary detachment was augmented by the temporary assignment of five separate veterinary detachments which were obtained from the Zone of Interior for assignment to mounted units. These were Veterinary Sections E, F, G, H, and I. Depot issues (and reissues) of approximately 1,600 horses were made, beginning in February 1943, to the 61st, 62d, 63d, and 68th Quartermaster Pack Troops and the 167th Field Artillery Battalion. The units were provided with separate veterinary detachments, but many of these returned their sick animals to the depot's veterinary dispensary for care and treatment.

Beginning in August and continuing through November 1943, during which time it had become evident that pack-mounted units were not essential to the fighting on Japanese-held islands in the Pacific, the four quartermaster pack troops and the field artillery battalion in Australia were dismounted or inactivated, and their horses were returned to the remount depot. Being advised by the War Department that the 3,200 animals in the depot were not needed elsewhere, arrangements were completed for their transfer to the Australian Army; the depot veterinary dispensary was closed on 28 April 1944, and the remount squadron troop was disbanded a few months later.

Up to the time that the veterinary dispensary, Remount Depot, Townsville, was closed, 1,883 cases of disease and injury were reported (*34*), as follows:

Average mean strength	2,329
Admissions:[1]	
For disease	1,297
For injury	586
Total	1,883
Treatment—days	67,025
Average days per admission	36
Died or destroyed	241
Number admitted per 1,000 average animal strength per year:	
For disease	419.4
For injury	189.4
Total	608.3
Number per 1,000 average animal strength per year died or destroyed	78.1

[1] Data include veterinary services rendered by the depot veterinary section for animals belonging to the 62d Quartermaster Pack Troop (January-September 1944) and the 63d Quartermaster Pack Troop (January-July 1944).

During the first 6 months of the period when the depot was receiving large numbers of remount animals from the purchasing board and processing them for issue, diseases rather than injuries constituted the major cause of animal morbidity. In fact, through June 1943, only 259 injury cases were recorded, whereas disease accounted for 1,041 cases. The latter, as would be expected among newly procured animals, included hundreds of cases of equine strangles, infectious rhinitis (or "colds"), and pneumonia The animals had been procured during the seasonal cold and rainy season, but the more important factor contributing to the relative high rate of these respiratory diseases was that the Australian railroads were not equipped to unload, feed, and rest the animals at regular intervals during the long shipments from the purchase points to the remount depot. After the summer of 1943, when the depot's animal population had become "seasoned" and was being placed or maintained more or less on a ranch basis, the animal disease situation improved considerably. However, keratitis began to make its appearance among many animals, probably caused by wind and dust or by awns of certain grass seeds. Other commonly occurring diseases were trichophytosis (or ringworm) and tick infestations which were controlled by dipping or spraying the animals with lime-sulfur solution; gastrointestinal parasitisms were treated by the administration

of phenothiazine. During April 1943, the immunization program against tetanus was undertaken, but, before this was completed, three fatal cases of that disease were reported among the depot horses. Glanders—a disease from which Australia claimed to be free—was tested for in 1,400 newly purchased animals, and the test results were negative.

As the transfer of the horses to the Australian Army was nearing completion (in April 1944), the China-Burma-India theater expressed an urgent need for the animals; 2,336 of these were transshipped to that theater during the winter of 1944–45. Actually, the horses were processed for this movement by the Australian Army and then embarked on U.S. animal transports pursuant to the animal export laws and quarantine regulations of Australia;[7] once loaded, the horses returned to the technical jurisdiction of the Army Veterinary Service or its Veterinary Corps officers who were assigned to these transports (*35*, *36*, *37*).

On New Guinea (in the Southwest Pacific Area), quartermaster remount activities were started during July 1943 when Troop A, 251st Quartermaster Remount Squadron (with station in Australia) established a forward echelon depot at Port Moresby. Mounted units on this island base were the 98th Field Artillery Pack Battalion, with approximately 1,200 mules, which had come from the Zone of Interior during February and June 1943, and Troop D, 16th Quartermaster Squadron, with 323 mules, which had arrived on 23 July 1943. Subsequently, with the dismounting of the latter unit (in October 1943) and the reorganization and subsequent dismounting (in March 1944) of the battalion, these unit animals were turned in to the remount depot—a peak strength of 1,352 mules being reached by mid-1944. The advance depot, having no assigned veterinary personnel, was originally dependent on the organic veterinary detachment of the quartermaster squadron's pack troop, but, after October 1943, its veterinary needs were met solely by the 16th Veterinary Evacuation Hospital which had set up station on New Guinea during February 1943. As illustrated in the following tabulation, from 1 August 1943, through 2 November 1944, that hospital treated 1,139 animal patients; most of these originated from the advance remount depot, although a few were evacuees from the pack troop and artillery battalion (*38*) :

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[7] These shipments included the *Peter Silvester,* with 30 horses, departing on 5 August 1944; the *Virginian,* with 640 horses, departing on 5 November 1944; the *Charles W. Wooster,* with 235 horses, departing on 8 November 1944; the *Henry Dearborn* and the *Joshua Hendy,* each with 320 horses, departing during November 1944; the *Cyrus W. Field* and the *John J. Crittenden,* each with 320 horses, departing during December 1944; and the *William S. Halstead,* with 151 horses, departing during February 1945. With the exception of the first shipment, all shipments originated at Townsville; the first originated from Brisbane. The *Peter Silvester* and the *Charles W. Wooster* also received mules at Port Moresby, New Guinea, before proceeding from the Southwest Pacific Area.

Average mean strength [1]	746
Admissions: [2]	
For disease	465
For injury	674
Total	1,139
Treatment ——estimated days	41,353
Average days per admission	38
Died or destroyed	54
Number admitted per 1,000 average animal strength per year:	
For disease	593.8
For injury	744.0
Total	1,337.8
Number per 1,000 average animal strength per year died or destroyed	72.4

[1] Only for period from December 1943 to 2 Nov. 1944.

[2] During August-November 1943, the 16th Veterinary Evacuation Hospital treated only those disabled animals as were evacuated by the attending veterinarian for the depot, including 43 cases also received from the 98th Field Artillery Battalion and from Troop D, 16th Quartermaster Squadron. In the period from December 1943 to 2 Nov. 1944, the 16th Veterinary Evacuation Hospital alone provided the veterinary services required by the depot and also received 37 cases evacuated from the 98th Field Artillery Battalion (December 1943-March 1944), the latter being included in the statistical data.

No serious animal diseases were reported among the mules while on New Guinea. A few clinical cases of botrytimycosis were treated; cutaneous habronemiasis and thrush of the feet caused losses of animal efficiency, but these were reduced when the mules under treatment could be isolated in screened-in veterinary stables or removed from the muddy corrals during the rainy season. The healing of wounds, any kind of wound, seemed to take a long period of time and was usually marked with exuberant granulations of the healing tissues (*39*, *40*).

Under much the same conditions that the horse-mounted units in Australia were canceled from the tactical planning and their animals were not needed in the Southwest Pacific Area, 1,340 Army mules on New Guinea were transshipped from the Advance Remount Depot, Port Moresby, to the China-Burma-India theater during the fall of 1944.[8] With the fourth or final shipment of these mules (during November 1944), the 16th Veterinary Evacuation Hospital closed station and began preparations for movement into the Philippine Islands where it was to be used in the theater's food inspection service.

[8] These shipments included the following: (1) 650 mules on the *Virginian*, departing on 2 August 1944, and accompanied by 1st Lt. E. W. George, VC. (2) 285 mules on the *Peter Silvester*, departing on 14 August 1944, and accompanied by 1st Lt. H. L. March, VC. (3) 320 mules, departing 1 October 1944, and accompanied by 1st Lt. W. McClaskey, VC, (name of the transport was not determined; the transport casual detachment was designated 6629A). (4) 85 mules on the *Charles W. Wooster*, departing on 2 November 1944, and accompanied by 1st Lt. I. I. Franklin, VC. An additional 30 mules on New Guinea were disposed of by transfer to the ANGAU on 7 October 1944. The *Peter Silvester* and the *Charles W. Wooster* also received horses in Australia before proceeding from the Southwest Pacific Area.

South Pacific Area

On New Caledonia (in the South Pacific Area), quartermaster remount activities were begun and a remount depot was established on 6–7 July 1942, when Troop A, 252d Quartermaster Remount Squadron, with 481 mules, arrived from the Zone of Interior (*41*). By this date, the 97th Field Artillery Battalion—having arrived 3 months earlier—already had obtained a few animals from local sources and received some shipments of U.S. Army horses from Australia (in the Southwest Pacific Area). Most of these horses were turned in by the field artillery battalion to the remount depot in exchange for the American mules, and the horses then were reprocessed and issued to the 112th Cavalry Regiment which arrived on New Caledonia during August 1942. By the end of that year, approximately 3,000 horses and mules were assembled on this Pacific island base—781 mules coming in from the Zone of Interior and the Panama Canal Department,[9] 2,032 horses being received from Australia (in the Southwest Pacific Area),[10] and 180 animals being bought locally.

During the early months of the next year, the 97th Field Artillery Battalion, with 947 mules and horses, departed for Guadalcanal where tactical operations had come under U.S. Army command, and, on 13 May, the 112th Cavalry Regiment returned 1,481 horses and mules to the remount depot prior to its departure for the Southwest Pacific Area. Therewith, the remount depot gained a peak animal population of about 1,700 horses and mules. These animals were cared for by the veterinary section included in the organic composition of Troop A, 252d Quartermaster Remount Squadron; this unit, during January 1943, was returned as a "paper organization" to the Zone of Interior, but its equipment and personnel were retained and used in the organization of the newly activated Troop B, 251st Quartermaster Remount Squadron. The latter's veterinary section was augmented by the Veterinary Detachment, 112th Cavalry Regiment, when that regiment was dismounted.

After mid-1943, the remount depot was concerned mainly with the examination of the horses and mules for combat serviceability and their processing for oversea shipment to the China-Burma-India theater. Beginning in September 1943 and continuing through the next 12 months, 1,571 animals (including 1,554 horses and 17 mules) were embarked on five animal transports departing from Nouméa, New Caledonia.[11]

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[9] The mules arrived in two shipments: The *Tjinegara,* arriving on 6–7 July 1942, with 100 from the Zone of Interior and 381 from the Panama Canal Department, and the *Peter Silvester,* arriving during November 1942, with 300 mules.

[10] See footnote 6, p. 499. The first shipment of these horses was received on 25 May and the last on 5 Dec. 1942.

[11] These shipments included the *Virginian,* with 590 horses, departing on 23–26 September 1943; the *Peter Silvester,* with 308 horses, departing on 2–3 November 1943, and at another time, on 11 May 1944, with 152 animals; the *Samuel H. Walker,* with 352 horses, departing on 4 June 1944; and the *Santiago Iglesias,* with 169 animals, departing on 13 September 1944. The *Peter Silvester*'s second voyage and the last-named shipment also included horses and mules being transshipped to the China-Burma-India theater from Guadalcanal and the Zone of Interior.

During the period from 1 January 1943 through 17 September 1944, the depot's veterinary section, as augmented by the Veterinary Detachment, 112th Cavalry Regiment (Dismounted), treated 1,096 animal cases of disease and injury (*42*), as shown in the following tabulation:

Average mean strength		746
Admissions:		
For disease		684
For injury		412
Total		1,096
Treatment	days	29,622
Average days per admission		27
Died or destroyed		188
Number admitted per 1,000 average animal strength per year:		
For disease		534.9
For injury		321.7
Total		856.6
Number per 1,000 average animal strength per year died or destroyed		147.5

Disease conditions of common occurrence included thrush and separation of the sole of the feet, arthritis, and a dermatitis of fungus origin. All mallein tests for glanders were negative. Shortly after the last animal shipment was made, the depot's veterinary dispensary was closed (on 17 September 1944) and the remount unit—Troop B, 251st Quartermaster Remount Squadron—was disbanded on 14 October 1944. During mid-November 1944, the Veterinary Detachment, 112th Cavalry Regiment, departed from New Caledonia.

China-Burma-India Theater

The Army Veterinary Service in the China-Burma-India theater became concerned with remount activities first in connection with the lend-lease supply of animals to the Allied-sponsored Chinese Army in India (*43*, *44*, *45*). The latter included remnants of the Chinese 22d and 38th Divisions, which, having been forced out of Burma, were being reorganized to fight against the Japanese enemy. As early as September 1942, veterinary officers at the Rāmgarh, India, training center for the Chinese were supervising the receipt and distribution of British animals for these divisions. This activity lasted for more than a year. Then, in connection with the plans to deploy U.S. combat teams, with animals, into Burma, a quartermaster remount organization was improvised. This was the 5321st Remount Depot Detachment (Provisional) which established station during November 1943 at the Rāmgarh training center; it transferred its operations northward to Ledo, during May 1944, where it was soon disbanded, being replaced on 13 July 1944 by a newly activated quartermaster remount troop.

At both depot sites, veterinary dispensaries were established by the 1st Veterinary Company (Separate) which had arrived in the China-Burma-India theater during the spring of 1943. Until the provisional remount organization had become operational, the Army Veterinary Service—utilizing Chinese military personnel—had received and processed the original shipments of U.S. Army animals arriving from the South Pacific Area.

During the latter part of 1944, the theater's remount service was gradually expanded to include four separate remount troops and a remount section. These were needed in connection with the continuation of plans to provide animals to the U.S. combat teams that were being deployed against the Japanese enemy in Burma and with new requirements to complete the mounting of the Chinese Army in India as the British animal supply dwindled. In fact, between June 1944 and July of the next year, approximately 5,300 mules and horses were supplied under lend-lease to this Chinese Army. These animals were brought into the China-Burma-India theater from the Zone of Interior and from the South and the Southwest Pacific Areas where they were surplus to military needs. Altogether, 29 animal transports with 10,703 animals arrived. Upon their disembarkation at Calcutta, India, after September 1944, the animals were processed for transshipment from the port to the remount depots in India and Burma by the 3113th Quartermaster Remount Section which was activated within the theater. The remount section, without its own attached veterinary personnel, referred its disabled animals to the 78th Veterinary Hospital Detachment which was activated at about the same time (in September 1944) and had established station in the port. Prior to September 1944, the disabled animals which had been disembarked from the transports and which could not be removed from the port area were cared for by an Indian Army veterinary hospital.

The remount troop units included the 698th Quartermaster Remount Troop which, upon activation during July 1944 within the theater, replaced the original depot detachment organization at Ledo, and the 699th Quartermaster Remount Troop which was organized at Rāmgarh. The Rāmgarh depot was augmented by Troop A, 252d Quartermaster Remount Squadron, which had arrived earlier with a shipment of animals from the Zone of Interior; during December 1944, the two units were transferred from Rāmgarh to Shillong, India. Troop A, 253d Quartermaster Remount Squadron, also accompanying a shipment of animals from the Zone of Interior, arrived and, during November-December 1944, established a depot at Myitkyina, Burma. On 1 January 1945, the foregoing two remount squadrons' lettered troops were redesignated, respectively, as the 475th and the 476th Quartermaster Remount Troops. Though each of the four remount troops had its own veterinary detachment, separate veterinary units, including two companies and five animal service detachments, set up hospital facilities in the vicinity of each remount depot (table 39).

Of the animals arriving in the China-Burma-India theater, half of the 4,760 mules from the Zone of Interior actually belonged to the quartermaster

TABLE 39.—*Period of stay of veterinary animal service units in support of quartermaster remount depots in the China-Burma-India theater*

Veterinary unit	Rāmgarh	Ledo	Shillong	Myitkyina	Calcutta (port)
1st Veterinary Company (Separate).[1]	June 1943–July 1944.	May 1943–December 1944.	October 1944–V–J Day.		
2d Veterinary Company (Separate).		December 1944–V–J Day.			
40th Veterinary Animal Service Detachment.	July 1944–December 1944.		December 1944–V–J Day.		
51st Veterinary Animal Service Detachment.		September 1944–August 1945.			
52d Veterinary Animal Service Detachment.		September 1944–V–J Day.		August 1945–V–J Day.	
78th Veterinary Hospital Detachment.					September 1944–July 1945.

[1] The parent 1st Veterinary Company (Separate) was located at Ledo for the period from May 1943 to December 1944 when it was transferred to Shillong. The other dates relate to the detachments of that company unit.

pack troops and field artillery battalions which on arrival were assigned directly to the U.S. tactical forces (or the theater's Northern Combat Area Command). Otherwise, the animals arrived as "casuals" and were processed by the remount depot system of the theater's Services of Supply organization. Another 872 animals, mostly horses, were received from the British or the Indian Army on a reverse lend-lease basis. The veterinary situation applicable to these animals inside of the remount depots could not be determined. Before V–J Day, 5,300 animals—as previously noted—had been supplied to the Chinese Army in India, and 2,300 to 2,450 were transshipped to the China theater; after V–J Day, the animals remaining in the depots were disposed of by the transfer of 103 to the British and the sale of more than 1,000 through a Foreign Liquidation Commission.

In the China theater (formerly a sector of the China-Burma-India theater which was discontinued in the fall of 1944), the remount activities were limited to the supply of animals for the American liaison teams on duty with the Chinese armies and divisions, and the turnover to these activities of 2,300 to 2,450 animals which were marched over the Stilwell Road during the summer of 1945. The Chinese military forces in China, unlike the Allied-sponsored Chinese Army in India and Burma, had a kind of a remount service of its own in China. However, with the increased emphasis on the combat preparation of some of the Chinese armies and divisions, a Sino-American bureau was organized for the purchasing and transportation of military animals in northern China and Tibet (*46*, *47*, *48*). Army veterinary personnel were included in the membership of this bureau. Beginning in April 1945, the first of a group of 2,000 or more such horses were shipped into Hsi-ch'ang, China; others were assembled elsewhere in the Sikang Province as of V–J Day. The 45th and the 62d Veterinary Animal Service Detachments and elements of the 19th Veterinary Evacuation Hospital provided veterinary services for the

Chinese animals in remount stations at Hsi-ch'ang and Kuei-yang. Most of the animals, as the result of a 6-week overland movement, arrived at these stations in poor physical condition and required a prolonged period of reconditioning.

Mediterranean Theater

In the Mediterranean theater, animals were procured by purchase, capture, requisition, confiscation, and shipment from the Zone of Interior; others were obtained by transfer and the evacuation of disabled horses and mules from the Allied military forces. Approximately 16,000 or more such animals, including those returned from units and organizations, were received and processed by the remount depot system of the Peninsular Base Section, an element of the theater's Services of Supply organization which supported the Fifth U.S. Army's northward advances against the German enemy on the Italian peninsula.[12] This depot system had its start unexpectedly and shortly after that Army's combat divisions, landing at Salerno Gulf (on 9 September 1943), had called on their division veterinarians to organize and maintain animal pack trains (*49*, *50*). Only pack trains could transport the needed supplies to the outpost positions in the rugged, roadless terrain of the Southern Apennine Mountains. At about the same time, with the uncovering of an Italian Army remount station at Persano (in mid-September 1943), the Veterinarian, Fifth U.S. Army, undertook the replacement of the animal losses in the divisional pack trains. A hundred animals belonging to the Italian station were collected from the countryside and were prepared for issue. During the next few months, Italian Army animals were requisitioned, and others were purchased from civilian owners; altogether, 1,100 mules and horses were obtained before the end of 1943. By this time, the newly assembled animals that became seriously sick and the disabled animals were being evacuated from the pack trains to the Fifth U.S. Army Provisional Veterinary Hospital which was organized with Italian personnel during December 1943 and to a French Army veterinary ambulance company.

During this early period, material assistance in the development of an animal supply was given by the Veterinarian, Peninsular Base Section, and then by that command's Quartermaster Remount Division which, in January 1944, gave way to a remount squadron type of organization, the 6742d Quartermaster Remount Depot (Overhead) with its own attached veterinary detachment (*49*). The depot organization assumed operational control over the procurement, processing, and issue of animals for the U.S. forces in the theater and set up station at the remount depot sites when vacated by the Fifth U.S. Army. Depots, other than the one at Persano, were soon established at Santa Maria (on 15 November 1943) and at Bagnoli (on 16 December 1943). The

[12] While remount operations in the Mediterranean theater seem to have first originated at this time, combat divisions had procured and used animals earlier during the campaigns in North Africa and then in Sicily.

depots, each having its own veterinary personnel, included veterinary dispensaries which also served as veterinary hospitals for many months, receiving disabled animals evacuated from the three or four veterinary evacuation hospitals that were deployed by the Fifth U.S. Army, as well as providing definitive care and treatment for depot issue animals. A share of their professional workload, however, was referred to a U.S.-supervised Italian veterinary general hospital, but it was not until the spring of 1945 that the depot veterinary dispensaries were completely relieved of their operational functions as base veterinary hospitals. At that late date, two U.S. provisional veterinary hospitals and two U.S.-supervised Italian veterinary hospitals were brought into the Peninsular Base Section and deployed to support the depot veterinary dispensaries and the Fifth U.S. Army's veterinary evacuation hospitals. (These new hospital organizations were the 2604th Veterinary Station Hospital (Overhead), 2605th Veterinary General Hospital (Overhead), Italian 1st Veterinary Station Hospital, and Italian 2d Veterinary General Hospital.)

Although the remount activities in the Mediterranean theater originated with the problems of maintaining the pack trains which were improvised within the combat divisions during the fall of 1943, they soon were redirected toward the supply of animals for U.S.-supervised Italian Army pack mule trains (or companies). These were assigned under the operational control of the Fifth U.S. Army's corps and divisions, and, coming into the army from Sardinia first during December 1943, eventually replaced all of the provisional pack trains of the divisions. The utilization of these units was based on the recommendations following a survey of Sardinia by the Veterinarian, Fifth U.S. Army, where 5,000 mules and 1,500 horses were found, together with much needed equipment, including two veterinary hospitals. By April 1944, veterinary personnel on Sardinia had embarked 1,262 mules and 53 horses on ships for Italy.

During the summer and fall of 1944, the remount depot system was greatly changed. The original facilities at Persano, Santa Maria, and Bagnoli were closed during May-June 1944, and, following the Fifth U.S. Army's breakthrough into Rome, one depot was set up for a short period of time at a racetrack in that city. Subsequently, remount depots were established at Grosseto and Pisa, with capacities for 4,000 and 600 animals, respectively. Then, on 14 September 1944, the 6742d Quartermaster Remount Depot (Overhead) was divided into two parts: The 1/2–6742d Quartermaster Remount Depot (Overhead) which was transshipped with the Seventh U.S. Army to Southern France and then transferred to the European theater, and the 6742d Quartermaster Remount Depot (Overhead)–1/2, which continued to operate the depots at Grosseto and Pisa in Italy. The latter were later augmented with Italian Army remount units which were under the technical supervision of a new remount organization, the 2610th Quartermaster Remount Depot (Overhead), formed on 21 January 1945. This new organization, on

7 July 1945, replaced the 6742d Quartermaster Remount Depot (Overhead)–1/2 which was disbanded during the following month (on 25 August 1945).

Through June 1945, the remount depot holdings of animals reached a peak of more than 3,600 mules and horses. The Army Veterinary Service with the remount depot system of the Peninsular Base Section had treated 4,741 cases of diseases and injury (*51*, *52*); the admission rates as based on the depot's animal strength by month had become considerably less after the winter of 1943–44 when the depots were first filled with almost any kind of animal that could be procured, and the depot veterinary dispensaries constituted the major veterinary treatment facilities in back of the Fifth U.S. Army. The animal disease rate within the depots was not unusually high considering that the average mean strength of 1,725 mules and horses over a 19-month period actually represented a constantly changing animal population. Arrivals, including returned animals and some animal patients, approximated 15,600, and issues, sales, administrative losses, and evacuated patients totaled 12,400. The 15,600 animals received included at least 3,900 from Allied British and French forces, 1,100 from Italian sources, 2,400 from Sardinia and Sicily, 2,881 mules brought in from the Zone of Interior, 1,000 recovered animal patients from Services of Supply veterinary hospitals, 90 from a miscellany of service units, and the remainder from the Fifth U.S. Army's field remount depots, pack companies, and field artillery battalions. The 12,400 animals disposed of included 1,500 for the British forces, 700 sold, 600 for the remount depot which was transferred to the European theater, 500 to Services of Supply veterinary hospitals for treatment, 90 for a variety of service units, 306 which died or were destroyed on account of disease or injury, and the remainder for the Fifth U.S. Army.

Despite the constant changes of the animal populations and the assembly of such large numbers from a wide variety of sources, the animal disease situation within the depots was relatively secure. On arrival, the animals were mallein tested for glanders and held in quarantine, during which time they were examined for physical condition. Stallions were ordinarily castrated. The more serious diseases reported among the depot animals included piroplasmosis and epizootic lymphangitis. The latter disease was controlled by the destruction of those animals found to be affected and led to the loss of a hundred horses and mules; it was seen in animals obtained in Italy as well as in those imported from Sardinia and Sicily. Piroplasmosis was reported in 70 animals, but only 21 of the cases terminated fatally or had to be destroyed because some success was obtained in their treatment with a trypanocidal drug, Acaparin. As would be expected, cases of mange, glanders, and tetanus occurred, but these were almost a rarity; in fact, clinical diagnoses of mange could not be confirmed by laboratory examinations. The respiratory disorders that are commonly seen in remount animals did not cause any great loss because most of the animals had been already "seasoned" or conditioned before coming into the depots.

During the last 6 months of 1945, the major effort of the Mediterranean theater's remount organization was directed at the disposition of its mules and horses. During this period, the 2610th Quartermaster Remount Depot (Overhead)—which had superseded the 6742d Quartermaster Remount Depot (Overhead)–1/2—closed out the Grosseto depot (in September 1945) and centered its activities in Pisa. On 10 October 1945, the depot organization was discontinued, but the disposition of the animals was continued by the Remount Division, Office of the Quartermaster, Peninsular Base Section. By December 1945, only 50 horses and mules remained; dispositions had been made by the transshipment of 280 horses to Marseilles, France (in the Delta Base Section, European theater), the sale of 700 horses and mules to Italian governmental agencies, and the transfer of 2,800 mules (originally received from the Zone of Interior) to the United Nations Relief and Rehabilitation Administration for supply to Yugoslavia (*52*, *53*, *54*).

European Theater

The Army Veterinary Service concerned with remount activities in the European theater evolved about the 6835th Quartermaster Remount Depot, which was the successor organization to the 1/2–6742d Quartermaster Remount Depot (Overhead) (*55*, *56*). It may be recalled that the latter originated with the 6742d Quartermaster Remount Depot (Overhead), in the Mediterranean theater, when it was divided into two parts; subsequently, this one part—including its own veterinary detachment—was transferred as a Seventh U.S. Army unit to Southern France, arriving at Marseilles on 20 October 1944. With the 600 to 700 mules and horses which were obtained in Italy and had accompanied the movement of the organization, remount depot operations were set up first at Is Surtille on 17 November 1944; a month later, these operations were moved to Chaumont, France. Through May 1945, the 6835th Quartermaster Remount Depot had received and processed 1,800 animals and had issued more than 750 of these, mostly mules, to the 513th Quartermaster Pack Troop. In the spring of 1945, the organization was designated to purchase 700 horses from the French in the European theater's Normandy Base Section area for transshipment to the Mediterranean theater, however, it turned out that no purchases were actually made (*57*).

After V–E Day, a few hundred captured German horses were processed by the depot organization which had reestablished station at Dornholzhausen, Germany, and another 650 animals, mostly mules, were disposed of either by sale to the United Nations Relief and Rehabilitation Administration or issue to military government. Only 275 horses and 45 mules were in the depot as of the end of 1945. Throughout the period since its organization in Italy, the depot's veterinary detachment had treated 1,036 cases of animal diseases and injuries, as shown in the following tabulation:

Average mean strength	7,752
Admissions:	
For disease	470
For injury	[1] 566
Total	1,036
Treatment ——days	19,686
Average days per admission	19
Died or destroyed	42
Number admitted per 1,000 average animal strength per year:	
For disease	46.7
For injury	56.2
Total	102.9
Number per 1,000 average animal strength per year died or destroyed	4.1

[1] Includes 30 battle casualty cases admitted during the months of December 1943 through June 1944; in March 1944 alone, 23 such cases were reported.

By the end of 1945, also, U.S. military government controls were being enforced over the former German horsebreeding establishments at Kaisheim, Bergsteten, Altefeld, and Monsbach (*58*).

ARMY HORSE BREEDING PLAN

The Army Horse Breeding Plan, started in 1920, had for its objective the encouragement of the breeding of horses of the type which could best be used by the Army (*1*). It was operated to make available a large number of Government-owned stallions of suitable type and good breeding, which, in the hands of civilian stallion agents, could be bred to privately owned mares throughout the Nation. In December 1941, the number of such stallions approximated 566; all were kept under the professional care and technical supervision of the Army Veterinary Service.

Though operating on a reduced scale caused by manpower shortages, rising costs, and reduced military demands for horses, the Army Horse Breeding Plan during World War II gave origin to 39,000 foals.[13] In the 1945–46 breeding-foaling season, 450 to 500 Government-owned stallions were bred to more than 11,000 civilian-owned mares; the resulting foal crop totaled 7,293 horses (*59*). It may be mentioned that the authority for the Army to conduct remount breeding was abolished on 1 July 1948, at which time, also, the Army Remount Service was transferred to the U.S. Department of Agriculture (*60*).

The distribution of Government-owned stallions and administrative controls over the Army Horse Breeding Plan were made by the same quartermaster remount area headquarters that supervised the procurement of animals in the Zone of Interior. The several remount area headquarters veterinarians, in addition to their responsibilities concerning animal procurement, conducted

[13] See footnote 1, p. 491.

physical examinations on the stallions when coming into Government ownership, investigated the sanitary conditions under which the stallions were kept and used by the civilian stallion agents in order to maintain animal health and efficiency, examined the privately owned mares in order to protect the stallions' health and to discourage the mating of unsound animals, and assisted in the instructional program for bettering the principles and techniques used in the Nation's horse industry. The stallions—quite a few of which were donated by civilian owners—were specially examined against acceptances of any having diseases of bones and the organs of locomotion, chronic respiratory disorders, evidences of having been "nerved," congenital deformities, diseases of the reproductive organs, and those defects which were hereditary in nature. The Thoroughbred breed was predominant on the list of Government-owned stallions, but registered Morgan and Standardbred animals also were obtained. The Arabian stallions were especially advanced in the Plan after the fall of 1943 when the Kellogg Arabian Nursery was donated to the Army and became the location of the Pomona Remount Depot. On arrival at the remount area headquarters or depots, the new stallions were mallein tested for glanders, examined for fertility, and their blood specimens were laboratory tested for dourine and, if not recently immunized, for equine infectious abortion; these procedures were followed by branding and prophylactic inoculations against equine encephalomyelitis, equine infectious abortion, and tetanus. It was obligatory that only healthy and sound stallions be issued to the civilian stallion agents.

Following their issue, the stallions were reexamined in their places of standing at least once each year by the headquarters veterinarian. They were mallein tested, reexamined for fertility, revaccinated as might be indicated, treated for internal parasitism, and their blood samples were forwarded for laboratory examination for dourine and equine infectious abortion; also, such dental treatment and foot care as was required was given (*61*). Concurrent with this, the veterinary officer investigated and advised the civilian agents on environmental sanitation and the methods used in breeding and handling the stallions, including the technique of artificial insemination. To the extent that it was practical, the civilian-owned mares which were scheduled for servicing to the Government-owned stallions were examined for soundness. The mares, except those in the areas specifically exempted by the Surgeon General's Office, had to be tested and found free of dourine, but the mallein test for glanders was not mandatory. Periodically, these stallions were returned to the Army remount depots for reconditioning, physical examination, and test for fertility. During the war years, 1940 through 1945, approximately 700 to 800 agent stallions were examined at the Army remount depots.

At one time, a brood mare band of 50 animals was prescribed for each of the three remount depots, but, as of December 1941, the depots had aggregated 199 mares, together with 458 foals and a few stallions. In many ways,

these were cared for and handled according to certain principles of veterinary sanitation and zootechnics, including artificial impregnation. In the five breeding-foaling seasons of 1940–41 through 1944–45, the depot-produced living foals numbered 557 (table 40). This number, when used in the computation involving the number of mares bred to determine a living foal percentage of 69.8, was an impressive index to the efficiency of the breeding techniques, brood mare band management, and programs of disease control. The most singular disease was equine infectious abortion (*Salmonella abortivo equina*) which since the early twenties was controlled by administering a bacterin agent to both mares and stallions (*62*). A so-called equine virus

TABLE 40.—*Breeding-foaling results among remount depot brood mare bands, by year, 1940–45*

Breeding-foaling results	1940–41	1941–42	1942–43	1943–44	1944–45
	Number	*Number*	*Number*	*Number*	*Number*
Stallions bred	10	11	16	12	15
Mares:					
Bred	161	162	194	168	113
Conceived	139	133	168	132	83
Aborted:					
Equine virus abortion	0	0	23	0	0
Streptococcus genitalium	1	0	0	0	0
Salmonella abortivo equina	0	0	0	0	1
Other causes	12	6	13	9	7
Total	13	6	36	9	8
Died before foaling	0	2	12	4	2
Died as result of foaling	0	2	0	0	1
Foals:					
Living at birth	126	126	121	119	65
Living foal percentage	78. 3	77. 8	62. 4	70. 8	57. 5
Died within 30 days:					
Pyosepticemia neonatorum	0	2	1	3	2
Premature	0	0	3	0	0
Deformity of legs or joints	0	0	1	2	1
Other causes	4	3	3	1	0
Total	4	5	8	6	3
Not normal at birth	Unknown	Unknown	0	8	7

Source: Jennings, W. E.: Twelve Years of Horse Breeding in the Army. J. Am. Vet. M. A. 116: 11–16, January 1950.

abortion, reported first in 1937–38, reappeared in endemic proportions during 1942 at Fort Reno, causing 23 of the 49 pregnant mares to abort.

Equally as important as the animal disease controls were the studies conducted on the techniques of breeding and methods of managing brood mare bands and young horses. Higher rates of conceptions were shown among foaling mares than in the group of maiden (or virgin) mares and were more readily assured if the mares were selected on the basis of prebreeding bacteriologic examinations of the genital tract and if the foaling mares were not routinely bred during the foaling heat period (that is, ninth-day breeding).

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CHAPTER XIV

Animal Care and Management

During World War II, the care and management of animals was an inherent and a real supervisory activity of the Army Veterinary Service. There was no theater or area, including the Zone of Interior, in which some type of veterinary animal service was not conducted. This service was directed at the improvement of the physical efficiency of animals of the Army and the protection of troop health against animal diseases.

The term "Army animals" generally was used when referring to the Army's horses and mules, whose mean strength during the war years averaged more than 44,000 (table 41). However, more appropriately the term referred to a number of classes or groups of animals that would include also the 500 to 700 Government-owned stallions which were used in the Nation's Horse Breeding Plan, the K–9 Corps of 10,000 or more Army dogs, the 54,000 birds used in the Signal Corps' Pigeon Service, the hundreds of livestock and poultry maintained by the Quartermaster Corps and Army Exchange System on food-producing farms or by the Medical Department and Special Services at rehabilitation and rest centers, and the undeterminable thousands of mice, rabbits, and other laboratory animals; also, it would include captured military animals. Other animal groups, but of lesser official status, were the officers' private mounts (or horses), the Olympic equestrian teams of the prewar and postwar periods, and the troop mascots and privately owned dogs, cats, and animal pets belonging to military personnel. In addition, veterinary animal service was furnished to such animals as were entered into lend-lease, civilian supply, and military aid programs, or as were uncovered by Civil Affairs and Military Government in liberated and occupied areas. Other animals coming under the professional supervision of Veterinary Corps officers at times were the "devil dogs" of the Marine Corps, the horses and dogs used in the Coast Guard's beach patrols, and the livestock on the Navy-administered island bases in the Pacific.

This listing of animal groups is a key to the scope of veterinary animal service during World War II. However, because of the diversity of the problems encountered with each, the groups are described separately in other chapters, and the term Army animals, as used, will ordinarily refer to Army horses and mules but may include also the Army dogs and signal pigeons.

Veterinary Corps officers investigated or surveyed the hygiene and sanitary conditions of the environs surrounding military animals and advised military commanders on the principles of veterinary sanitary science and on those methods of animal care and management related to health and efficiency. As there were many causes for animal disability and physical

TABLE 41.—*Mean strength for Army horses and mules in the U.S. Army, 1940–45*

Year	Mean strength		
	Total	Horses	Mules
1940	25, 175	20, 604	4, 571
1941	46, 520	39, 703	6, 817
1942	49, 701	41, 297	8, 404
1943	56, 287	40, 917	15, 370
1944	43, 334	22, 264	21, 070
1945	35, 200	13, 280	21, 920

Sources: (1) Annual Report of The Surgeon General, U.S. Army. Washington: U.S. Government Printing Office, 1941. (2) Annual reports, Veterinary Division, Surgeon General's Office, 1942–46.

inefficiency, these veterinary supervisory functions and responsibilities necessarily covered a great number of factors: The sanitary condition of picket lines, corrals, stables, and stable practices; forage and the feeding and watering procedures; restraint; grooming; the care of the feet and shoeing; the care and fit of equipment; exercise, conditioning, training, and work; the disposition of disabled animals; quarantine; and the qualifications and suitability of personnel who were taking care of the animals. In all of these matters, the duties of the Veterinary Corps officer were divided between that of a veterinary practitioner, a staff officer with responsibilities to keep superior military authority informed and advised, and a military commander with responsibilities for governing the command's veterinary service. These duties will probably be better understood after a description of the veterinary service with animals of an Army camp or station in the Zone of Interior.

STATION VETERINARY SERVICE WITH ANIMALS

The veterinary service with animals at a camp or station (*1*, *2*) was somewhat analogous to the medical service for troops. This station veterinary service was continuous for the animals from the time they were received until transferred, sold, or otherwise disposed of; however, it was not furnished to the animals which belonged to units and organizations having their own attached veterinary personnel. The latter group of animals was cared for by the unit or organizational veterinary detachment in a manner comparable to station veterinary service. On their arrival at an Army camp or station, the animals were inspected; those found to be sick or wounded were sent to the station veterinary hospital, whereas the others were placed in a special corral or stable and confined under the conditions of a veterinary supervised quarantine. This quarantine ordinarily lasted for 21 days during which time the station veterinarian examined the animals for contagious diseases, including the administration of the mallein test for glanders.

After release from quarantine, the animals belonging to the organizations

of the station were inspected daily in the corrals or stables; in fact, the station veterinarian had access to all animals at all times. It was necessary that disabilities in the animals be detected promptly and be properly treated at the earliest practical moment after their discovery and that the disabled animals be segregated from the well until their health was restored. With their presentation at veterinary sick call, the disabled animals were divided into three groups: (1) Those admitted to the station's veterinary hospital for treatment; (2) those with less serious diseases and injuries which were treated and then returned to the organizations as stable cases (or outpatients); and (3) the recovered patients that were returned to full duty status. In these activities, the Veterinary Corps officer alone was responsible for determining when an animal was physically incapacitated and would be placed on veterinary sick call and when the patient was to be discharged to duty status; he also determined the nature of the treatment or curative measures which were used. Where the disability was severe, involving suffering, or would cause a permanent total loss of the animal's usefulness, the station veterinarian performed euthanasia or submitted the animal for review and destruction by proper military authority, as was indicated.

Though the veterinary sick call and veterinary hospitalization were professionally interesting and outstanding events in the daily routine of the station veterinary service with animals, animal hygiene and veterinary sanitation—like quarantine—were more important to the Veterinary Corps officer and to the Army as a whole. These were corrective measures applied in a prompt, energetic, and efficacious manner. They prevented or diminished the disability and physical inefficiency of Army animals. Military commanders alone were responsible for the enforcement of animal hygiene and veterinary sanitation within their organizations, but the station veterinarian was responsible for supervising these activities. The latter supervised these to the extent that, under the terms of conducting veterinary sanitary inspections, the hygienic conditions and sanitary environs were investigated, and recommendations were made for the correction of observable defects in animal care and management (*3*, *4*). The survey findings and recommendations were assembled into Veterinary Sanitary Reports (*5*, *6*, *7*). The report was sent as a letter report through military command channels to The Adjutant General. With the onset of World War II, this report was rendered at the end of each month, but, in November 1942, as it became evident that no great number of animals might be used, the distribution of the report was limited to the surgeon of the command; after the end of the war, the Veterinary Sanitary Report was described for inclosure to a surgeon's Monthly Comprehensive Sanitary Report (Reports Control Symbol MCE–132).

ANIMAL QUARANTINE

Animal quarantine within the Army refers to the 21-day segregation of Army horses and mules on arrival at a station, command, or area under

military jurisdiction, or may mean a detention of those exposed to or suspected of having communicable disease. It played an important part in preventive veterinary medicine and in the supervisory care and management of animals, being one of the major procedures which the Army Veterinary Service used in carrying out its responsibility to protect the health and preserve the physical efficiency of Army animals. The procedure had gained its importance in the Army under the conditions that relatively large numbers of animals were assembled or collected from a wide variety of sources and then moved frequently, sometimes into far-distant places. It was conducted at the place of receipt of animals in order to protect the local health situation and to lessen the chances of introducing or disseminating communicable animal diseases from the point of origin or points along the route of the movement; such diseases could be those transmissible to animals of a military command or to the civilian animals in an area of military operations, or could be those dangerous to troop health. In a wider sense, veterinary quarantine practices within the Army imposed certain responsibilities also on the Veterinary Corps officer at point of origin to avoid the shipment of diseased animals.

The animal quarantine within the Army was routinely applied at the moment of arrival of horses and mules at a station or in a command, regardless of their source, and pertained equally to Army animals, privately owned horses, and captured animals (*1*). The animals in quarantine ordinarily were taken care of by the organization to which they belonged; in fact, the organization commander was responsible for the enforcement and operation of the quarantine procedures, and the veterinary officer only supervised the procedures. The latter recommended whether newly purchased or captured animals should be placed into absolute quarantine and when seasoned animals should be placed into a working quarantine status. Daily inspections were made of the quarantined animals, and, as indicated, the quarantine measures were modified. While a period of 21 days was mandatory for all new arrivals of animals, a quarantine of variable length was imposed on recommendation of the veterinary officer in any event that a communicable disease appeared among Army animals (*4*, *8*, *9*). Animals suspected of having such disease or in the proximity to a positive or suspect case also were quarantined until shown to be free of the disease. Animals found to be infected with glanders, anthrax, dourine, or surra were destroyed immediately; if infected with any other communicable disease, they could be isolated until they were completely recovered and comprised no threat of spread to animals or to troops.

During the emergency periods preceding World War II, the Army Veterinary Service successfully recommended the discontinuance of Army animal buying until the U.S. Department of Agriculture could effect a cooperative test-and-eradication program against dourine in three States in which that disease had appeared among the civilian animal populations; as soon

as the Federal quarantine restrictions against the extrastate movement of animals were lifted, Army buying was resumed.

Federal quarantine regulations included restrictions, and sometimes prohibitions, against the importation of animals which might introduce or disseminate exotic or other diseases among the Nation's animal population. These were applied upon Army animals which were imported from the European Continent after World War I and World War II. Probably best referred to as import quarantine, the Federal quarantine procedures were imposed on these animals just as were the Federal or interstate quarantine procedures because they were mandatory on all incoming animal traffic pursuant to the Nation's laws and the regulatory controls that were developed by the U.S. Department of Agriculture pursuant to these laws.

During World War II, there was little or no traffic of military animals into the United States. However, after V–E Day, the problems of import quarantine arose with the importation of captured horses from the European Continent. A shipment of 152 horses on the S.S. *Stephen F. Austin* was processed through Newport News, Va., on 31 October 1945, and was quarantined at the Front Royal Remount Depot (*10*). A second shipment of 83 animals on the S.S. *American Ranger* arrived in mid-August 1946 (*11*, *12*, *13*, *14*). The precautionary procedures which were taken by the Army Veterinary Service in the country of origin and during the quarantine period in the United States were conducted to the satisfaction of the U.S. Department of Agriculture.

Another type of animal quarantine included the restrictions or prohibitions which originated with the animal disease control or import laws and regulations of the U.S. territories and foreign countries into which Army horses and mules were moved. Referring to this as foreign quarantine, such restrictions and prohibitions were familiar subjects with the Army Veterinary Service for many years before World War II. However, there is no evidence available that would indicate that foreign quarantine was once thought of as likely to influence the traffic of Army animals across international boundaries as it did during the war. During the preceding peacetime period, the Army Veterinary Service with the oversea departments routinely quarantined all incoming military animals pursuant to Army regulations and continued to do so even after the local governments in the Hawaiian and Philippine Islands and in the Panama Canal Zone had promulgated their own animal import laws and quarantine regulations. However, where such laws and regulations were developed, the Army Veterinary Service acted as an agency for the civilian governments to conduct the quarantine over the importations of Army animals. Routinely, the observance of such quarantines was a matter of local concern, beginning more or less as a subject of professional concern between Army Veterinary officers and the local or governmental quarantine or veterinary authorities. These involved matters of re-

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spect, appropriate relationship, and avoidance of usurpation of civilian responsibilities. It was more beneficial for the oversea department military commanders to cooperate with, rather than unnecessarily assume, the responsibilities of, civilian regulatory officials for protecting the territorial public health and the livestock populations from animal diseases that might be introduced. This original and informal understanding in time gave way to official military directives upholding the interests and responsibilities of civil animal quarantine laws and procedures.

The foreign quarantine problem of World War II was recognized soon after the consummation of the destroyer-leased base agreement of 1940 between the United States and Great Britain which led to the development of a new defensive screen of military island bases in the Atlantic and Caribbean areas. By July 1941, the Army Veterinary Service was studying the entrance of horses into the new Bermuda Defense Command in such a manner as to comply with the animal import laws of Bermuda (*15*, *16*, *17*). Then, during the fall of 1941, the War Department informed and requested compliance by all concerned with the import requirements of the governments of Bermuda, Antigua and St. Lucia of the British West Indies, Trinidad, Tobago, Jamaica, British Guinea, and Newfoundland (*18*, *19*, *20*, *21*). In 1941, the Veterinary Division, Surgeon General's Office, also studied the problem of exporting a few horses into Peru (*22*, *23*).

After the attack on Pearl Harbor, thousands of horses and mules were shipped from the Zone of Interior into the war theaters for the Allied armies, and the observation and compliance with the animal import laws and regulations of foreign countries did not become as great a problem as those concerning the traffic of Army dogs, signal pigeons, and the animal pets belonging to military personnel. However, that foreign quarantine might hamper military operations which were dependent on the utilization of animals seems to have escaped all comment. The closest approach to such a situation occurred during World War II when the civil quarantine officials in Australia, which was a major staging and defensive area in the SWPA (Southwest Pacific Area), forced the diversion of three shipments of approximately 1,500 Army mules of U.S. origin to New Guinea. In contrast, little or no quarantine procedures, other than those regularly prescribed by the Army on all its movements of horses and mules, were imposed on the animals brought into the South Pacific Area, China-Burma-India theater, and the Mediterranean theater. In the Central Pacific Area (comprising the original Hawaiian Department), incoming animals were quarantined under Army veterinary supervision to the satisfaction of the Board of Agriculture and Forestry, Territory of Hawaii (*24*). The action which was taken with respect to the 1,500 Army mules paralleled a similar threat against the importation of foods for feeding the American soldiers sent to assist in the defense of Australia. The same Australian governmental health officials also imposed their own export laws and regulations on the movement

of military horses from Australia, but events proved that these were not followed in as meticulous a manner as might have been when approximately 2,500 horses were purchased by the Army in Australia and transshipped to the American forces on New Caledonia (in the South Pacific Area) (*25*, *26*). Between June 1942 and February 1943, the Australian health officials' request for the Army to observe that country's prohibition against the importation of any animal from the North American Continent grew into almost pretentious demands that reached into diplomatic channels. By this time, the original planning to use animal pack trains and mounted field artillery battalions—evidently once believed to be essential for fighting the Japanese enemy on jungle islands of the Pacific—was canceled, and the mules of U.S. origin were diverted to New Guinea.

FEEDS AND FEEDING

Another supervisory activity of the Army Veterinary Service with animals concerned their feed and forage supply. The quantity and quality of this supply received no less attention than did the food which was procured and issued to troops. There can be no question that the use of sound, nutritious, and good-quality feeds and forage as well as the practice of sound feeding principles were essential to the health and well-being of Army horses and mules. The technical supervision over feeds and feeding, including inspection, was the assigned responsibility of the Army Veterinary Service. The inspection or examination consisted of an inspection for the grade quality and other characteristics as were specified, and a sanitary inspection.

Forage inspection activities were the continuing responsibilities of the Army Veterinary Service in World War II, when they were practiced not only in the Zone of Interior but also were established and conducted in such oversea theaters as the Southwest Pacific, China-Burma-India, Mediterranean, and European. An index to the extent of these activities may be seen in the quantities of grain, hay, and straw which were inspected incident to their procurement by the Army (table 42). The grand total of 2½ billion pounds for the war period, on a year-to-year basis, was two to three times the amounts which had been inspected each year in the preceding peacetime period, 1922 through 1939. During World War II, forage procurement inspections were also conducted over the supply for the Coast Guard mounted beach patrols which were provided with Army horses under the joint Army-Navy agreement of 18 September 1942 (*27*). In addition, more than 130 million pounds of hay and straw were inspected when harvested from the so-called Army forage farms which were maintained at remount depots and larger camps (*28*, *29*).

During World War II, insofar as it was practical, forage inspection was conducted routinely by Veterinary Corps officers who were specially trained and qualified. By mid-1941, 9 National Guard officers and 112 veterinary

TABLE 42.—*Procurement inspection of animal feeds and forage procured by the U.S. Army, 1940–45*

Year	Passed	Rejected		
		Total	Causes of rejection	
			Not type, class or grade	Insanitary or unsound
	Pounds	*Pounds*	*Pounds*	*Pounds*
1940	235, 086, 263	12, 772, 997	9, 185, 990	3, 587, 007
1941	404, 959, 058	23, 822, 332	16, 614, 604	7, 207, 728
1942				
1943	664, 038, 593	43, 864, 175	22, 424, 787	21, 439, 388
1944	505, 613, 420	24, 388, 771	14, 566, 095	9, 822, 676
1945 [1]	90, 917, 176	2, 624, 086	1, 036, 705	1, 587, 381
Total	1, 900, 614, 510	107, 472, 361	63, 828, 181	43, 644, 180

[1] Includes months of January and February only.

Sources: (1) Annual Report of The Surgeon General, U.S. Army. Washington: U.S. Government Printing Office, 1941. (2) Annual reports, Veterinary Division, Surgeon General's Office, 1942–46.

officers of the Regular Army had qualified as forage inspectors following completion of a course of instruction at the Army Veterinary School. During the war period, 66 additional officers were qualified. During World War II, the Federal specifications for grains, feeding hay, bedding hay and straw, and concentrated feedstuffs were revised; the Veterinary Division, Surgeon General's Office, on request, reviewed these Federal specification changes before they were put into effect (*30* through *34*).

Though the official U.S. grade standards and Federal specifications were major influences, equally important demands concerning bacteriological quality and nutritional values were placed on the forage supply for Army horses and mules by the Army Veterinary Service. For example, after 1942, the supply that originated from areas in which anthrax was indigenous or under quarantine jurisdiction (*2*). Also, the feed and forage could be submitted to Army veterinary laboratories for examination for molds, harmful bacteria, parasites, and adulteration, or for chemical or nutritional analyses (*35*, *36*, *37*).

The procurement-inspection system that was used in World War II emphasized point-of-origin inspection of the forage in the contractor's establishment. This system, more or less, followed a pattern that was established in 1928 when the Quartermaster Corps imposed a mandatory procurement-inspection system upon its feed and forage supply program for the Army (*38*, *39*). Formerly, pursuant to the regulations of the Army, procurement inspection was conducted only when a veterinary officer was available at the procurement point and was expressly requested by the receiving quartermaster officer to inspect the forage for compliance with Government specifi-

cations (*40*). Under the new inspection procedure and as operated throughout World War II, the point-of-origin inspection was accomplished, either by Federal hay inspectors who were licensed by the U.S. Department of Agriculture for the grading of hay and straw procurements only, by Federal-employed grain supervisors for the grading of grain procurements only, or by Veterinary Corps officers who, however, could determine the grade quality of any animal feed and forage and at the same time conduct the examination of the sanitary qualities of the product as well as make the sanitary inspection of the contractor's establishment (*41*). In those instances in which the grade was properly established, the inspection which was made at the point of delivery to the Army (or destination inspection) included the acceptance of the previously determined grade quality, except in unusual circumstances, and the inspection only for the sanitary condition of the forage. Where the grade quality was not determined at point of origin, the destination inspection, as conducted at the Army camp or remount depot, included both the grading and sanitary inspection. Any destination inspection was considered as final insofar as Army procurement procedures were concerned and was always conducted by the Army Veterinary Service. The reports of the inspections were forwarded to the concerned Quartermaster Corps contracting officer, who alone was responsible for the decision of acceptance or rejection of the feed and forage for the Army.

Forage Ration Studies

Studies were conducted on the protective procedures of safeguarding Army animals against biologic and chemical contamination of their feed and forage supply (*42*, *43*, *44*, *45*). Some of the studies concerned the nutritional qualities and military acceptability of sugar cane, algarroba bean, rice hay, and other feeds which were indigenous in the Hawaiian and Philippine Departments. During World War II, the intensive studies on equine periodic ophthalmia at the Veterinary Research Laboratory, Front Royal, Va., led into the study of the riboflavin deficiency syndrome. Studies also were made on the mineral requirements, especially the calcium-phosphorous ratio in the ration of horses and mules, as well as on sporadic outbreaks of plant poisoning. A continuing search was made for economical and suitable substitutes for components of the animal ration; namely, barley for oats; soybean meal for linseed meal, molasses; lespedeza hay; and sawdust, pine needles, peanut hulls, bearded wheat, and millet for bedding straw and hay.

Of particular importance were the studies on a forage ration needed for emergency or field use. The scientific study on the roughage requirements of the dietary was undertaken after the onset of World War II when the Army Veterinary Service and the U.S. Department of Agriculture cooperated in the experimental development of a new complete Army horse and mule feed.

These veterinary studies were undertaken upon the request of the Office of the Quartermaster General of 2 December 1941, indicating that a ration was needed which would possess the necessary nutrient qualities for animals but would be considerably smaller in bulk to transport (*46*). This matter of bulk in the forage ration had become a major argument against the planned oversea deployment of horses and mules in World War II because of the great demands on Army shipbottom space for other military supplies. By January 1942, the Veterinary Division, Surgeon General's Office, and the Bureau of Animal Industry, U.S. Department of Agriculture, the latter being requested to assist in the development project, had established a preliminary feeding experiment with a commercially prepared concentrated animal feed at the Agricultural Research Center, Beltsville, Md. This experiment was soon extended to feeding trials with the horses and mules of several cavalry regiments and field artillery battalions at station or in maneuver training at Fort Bliss, Fort Bragg, Fort Riley, and Camp Hale. The feeding trials were subsequently reported upon by the 1st Cavalry Division Board, Field Artillery Board, and Field Artillery School but with such conflicting summaries and doubt on the efficacy of the feed under study that on 6 July 1942, Headquarters, Army Service Forces, directed the continuance of the research project. This research project was resumed on a feed prepared in pellet form after formulas which were developed jointly by the Army Veterinary Service and the U.S. Department of Agriculture. One such formula included oats (47 percent by weight), sugar beet pulp (35 percent), dextrinized starch or amidex (10 percent), alfalfa meal (7 percent), and salt (1 percent); another used corn and timothy hay along with a lesser percentage of the oats component. After a feeding experiment with the pelleted feeds at the Agricultural Research Center, larger scale feeding trials were authorized during the fall of 1942 by Headquarters, Army Services Forces, and Headquarters, Army Ground Forces, to be conducted at Fort Bliss and Camp Hale (*47*, *48*, *49*). The conditions of these trials were established by the Veterinary Division, Surgeon General's Office, and included the comparison of the experimental pelleted feed with the Army's regular forage ration and with a doubly compressed mixture of hay, oats, and salt. The test boards of the Army Ground Forces showed the pelleted feeds to be completely unsatisfactory and asked that the Army's emergency forage ration be one comprising a doubly compressed bale of hay, oats, and salt (*50*, *51*). The Army Service Forces concurred in this matter, and the wartime research activities on a complete horse and mule feed were canceled, effective 16 August 1943 (*52*, *53*).

Forage Supply in Oversea Theaters

The studies on the Complete Army Horse and Mule Feed were matched by developments in the oversea theaters which reduced the bulk and facilitated the handling and transportation of animal feeds and forage. For

example, veterinary officers of the SWPA urged the use of compressed oat hay chaff in lieu of the regular hay component of the forage ration, the former being available locally in bales or packed in bags for the Australian Army (*54*, *55*). In the spring of 1943, assistance was given to the Quartermaster Corps in the investigation, inspection, and development of Australian feed sources on a double-compressed forage ration or a baled mixture of oats (28 pounds), oat hay chaff (40 pounds), and alfalfa or lucerne hay chaff (16 pounds). Both offered great reductions in bulk; the latter weighed 84 pounds and occupied a space of only 1 cubic foot (*56*, *57*). In the China theater, the Army Veterinary Service took energetic steps in requisitioning hay-baling machines from the United States and having them airlifted over the Himalayan Hump into China in order to introduce and to provide hay in baled form to the American-sponsored Chinese military forces which had been using unbaled loose hay (*58*). Also, a compressed emergency animal ration was developed there that seemed to be satisfactory for short-time feeding or use as long as the animals would eat it. It was a mixture of barley (2.2 pounds), wheat bran (2.12 pounds), straw (1.1 pound), sugar (6.6 pounds), and salt (0.66 ounces), that was steamed and compressed into small cakes, the cakes then being wrapped with paper and packed in boxes which were made waterproof with a covering of a pig blood-tar mix. For the aerial supply or airdrop support to the mounted combat teams in the jungles of Burma, the grain components of animal rations were packaged in double-strength burlap bags (*59*).

Though the bulk reduction and packing of animal forage had become matters of great importance wherever animals were deployed, the Army Veterinary Service in the oversea theaters was also concerned with the investigation or uncovering of local resources, the study of indigenous forage and feeds, and with surveillance over the storage and methods of feeding. A large share of the forage used overseas originated within the theaters; veterinary procurement inspections in the European theater, for example, approximated 3 million pounds during the first 6 months of 1945 (*60*). In the SWPA, forage was obtained on a reverse lend-lease basis from Australian suppliers and was inspected whenever veterinary officers were available, particularly that forage which was transshipped to New Guinea. This supply was generally adequate and included oat hay, lucerne or alfalfa hay, oats, bran, and salt; however, the hays which were available were field matured so that they were obtained in a chaffed form. In line with the feeding methods used in the Australian Army, these chaffed hays were mixed with the grain and salt components of the forage ration and were given to the animals by a nosebag or feedbag. Bran, easily fermented in the feedbags and difficult to store under humid tropical conditions, was withdrawn from the ration for the mules on New Guinea.

Considerably greater difficulties were experienced in the Mediterranean theater where the use of animals had come about unexpectedly and the Allied

animal strength of the Fifth U.S. Army rose to a peak of 12,000 animals by the spring of 1944 (*61*). Under the condition of unexpectedness that was made worse by the scorched-earth policy of the retreating German enemy, feed and forage soon became short in supply. The veterinary officer with the 36th Infantry Division's provisional pack train, with approximately 750 animals, complained that the feed, consisting mainly of barley and straw, was very poor. Toward the end of the 1943–44 winter campaign, the supply shortages were reflected in the physical condition and efficiency of the animals; malnutrition was causing the loss of many old animals. This situation was moderately corrected with the uncovering of 8,800 tons of roughages and grains in southern Italy and of a feed manufacturing plant in Maddaloni, Italy. Then, with the increased importations of feed and forage into Italy and reestablishment of crop production on the Italian farms during the following summer, the supply became adequate. Of course, whenever possible, the animals were grazed.

In China (*58*), the feed and forage supply was no worse than that encountered by the Allied armies in the Mediterranean theater during the winter of 1943–44. The veterinary officers on liaison duty with the American-sponsored Chinese military forces found it to be so short that its supply probably lessened the animal strength and efficiency in the units which deployed against the Japanese enemy in certain areas. The existing tactical and transportation conditions prevented the importation of the required forage into such areas. Along with shortages normally encountered where forage was extensively used for food, fuel, and building construction by the native population, the Chinese forage ration was below the nutritional standards believed necessary to maintain Army animals and was provided under a monetary allowance system which was far less efficient than the issue-in-kind system used by the other Allied armies. Changes that were recommended in March 1945 for the ration to be issued in kind and with increases in the quantities of its components were reluctantly approved by the Chinese Ministry of War, and the effective date was considerably delayed.

Elsewhere in the Asiatic theater, the supply of feed and forage presented a variety of other problems (*59*). The supply for the Allied-sponsored Chinese military forces in India and Burma originated with the British Army and included roughages such as bhoosa, paddy straw, and Indian grass hay, and concentrates such as barley, cowpeas, gram, maize, rice, and wheat bran. Bhoosa, the straw of cereal or leguminous crops, was received in the form of rope-tied bales weighing 60 to 70 pounds, but, like the paddy straw which was threshed rice straw, it had little nutritive value. The paddy straw was usually cut in short lengths and mixed with grain in order to induce animals to eat it. The Indian grass hays were generally unsatisfactory, being overripe, overcured, and contaminated. Of the concentrates, barley and grain were the principal ones and were usually fed in combinations of 5 to 7 pounds of barley and 2 to 3 pounds of grain. This supply was aug-

mented in the advance combat areas with grazing or foraging operations. In these areas, kunai and elephant grass were found to be satisfactory, but, in the mountains and jungles where these did not grow, bamboo shoots and leaves were used. The bamboo leaves had little nutritive value and when fed in too great quantity seemed to cause intestinal impactions in the animals.

The uncovering or finding of feed and forage resources in the advance and combat areas of the India-Burma theater seemed to have been a principal veterinary activity. During June-July 1943, veterinary officers set out on foot "* * * to make a reconnaissance of Northern Burma to determine the condition of the trails, locate and mark areas where animals might be grazed, map a route over which the animals of the Chinese Army in India might be taken into Burma, and to determine whether animals would be able to subsist entirely off the land without supplementary forage." In October 1943, the Veterinary Corps officer on liaison duty with the Chinese 38th Division conducted an aerial survey in the Hukawng Valley with much the same objectives. Following the surveys, the Chinese military forces and American combat teams (that is, Merrill's Marauders and MARS Brigade) routinely depended upon the grazing of their animals on the trails and in the vicinity of aerial supply dropsites along the lines of advance against the Japanese in Burma. Though the grazing provided the roughage component of the animal ration, the grain component was supplied along the route of march at dropsites and included grain and barley, separately packed, 40 pounds in a double-strength burlap bag. Concerning the supply to the Chinese 38th Division during the Hukawng Valley operations, the liaison veterinary officer reported:

> * * * Cracked barley and grain were air dropped and fed on the basis of six pounds of the former and two of the latter to our animals that were mostly India tonga ponies weighing between six hundred and eight hundred pounds. Requests for increases in the grain ration were recommended to G–4, but refused due to limited air tonnage. * * *
>
> * * * It was impossible to tell if the bag contained barley or grain, and unless the issuing officer opened each bag prior to issue, some outfits would obtain all of one kind. When grain was fed in excess, it produced a severe diarrhea, while a full ration of barley was not palatable and was frequently rejected by the animals. My recommendations to the Services of Supply to mix the two grains prior to shipping were ignored without reason.

Other troubles arose when aerial dropsites could not be reached on schedule or where the animal ration was reduced below the previously cited poundages.

HORSESHOES AND SHOEING

Just as forage inspection and animal feeding had comprised an important supervisory activity of the Army Veterinary Service, so did the care of the feet and shoeing of horses and mules. Horseshoeing, the supply of horseshoes and horseshoe-making equipment, as well as the training of horseshoers, were critical problems with veterinary officers in the China-Burma-

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India theater where Allied Chinese military forces were sponsored in the fighting against Japan. Comparable but less extensive problems were experienced in the Mediterranean theater where large numbers of animals were used (*61*). With the same degree of unexpectedness that horseshoeing had become a problem in these Asiatic and European areas during active military operations, horseshoeing again came to the forefront in occupied Germany when the latter in returning to a peacetime agricultural economy saw its draft horses and draft cattle unshod or wearing wornout shoes (*62*). The postwar supply of iron and nails was soon reestablished, but the reconstruction of shoeing schools, along with the development of a new German group of farriers who were properly trained, qualified with an apprenticeship and examination, and legally licensed to practice "hoof and claw shoeing," was not nearing completion until 1947.

In nearly all of these activities, the veterinary officers were far afield from the prescribed responsibility of the Army Veterinary Service to exert only such supervisory controls over Army horseshoeing as would improve animal health and efficiency. Horseshoeing, as a number of other details concerned with the care and management of animals, may not seem to be important in the motorized and mechanized Army such as fought in World War II, but it was particularly important to the Allied military forces that were dependent on animal transport or in the occupied countries which were returned to agricultural pursuits.

With the onset of World War II, there was an evident need for increased numbers of horseshoers in the Army, but there is no veterinary record of the continuation of the station or unit horseshoeing schools in the Army camps or mounted units after they had found their animals to be surplus and had returned most of the horses and mules to quartermaster remount depots in the Zone of Interior. The Cavalry School, Fort Riley, Kans., continued to train horseshoers for the Army, utilizing veterinary officers as instructors who later (in January 1945) came into complete control of that facility's Training School for Horseshoers.[1]

In the China-Burma-India theater, the Army Veterinary Service was confronted with a great number of serious problems that arose when, for the first time in the modern history of the Chinese military forces, proper attention was given to the care of the feet and shoeing of its animals (*58*, *59*, *63*). At about the time that they came under the sponsorship of the Allies in India and Burma and of the United States alone in China, the Chinese armies and divisions ordinarily had by far too small a number of horseshoers, and only 10 percent of their animals were shod. Neither the horseshoe-making equipment nor the horseshoes and nails were available to give any immediate assistance toward

[1] On 1 November 1946, the Cavalry School was redesignated the Ground General School, the latter then becoming the Army General School on 1 January 1950. Although the Army had lost most of its animals since World War II and Cavalry was amalgamated into the armored forces, it is interesting to note that the Army School Catalog of 1949 made reference to an official course of training for Army horseshoers (Course 2–E–1).

improving the horseshoeing situation of the Allied Chinese forces. Under the conditions that these forces were to be trained and supplied, or otherwise prepared, to fight the Japanese in Asia, efforts were directed first in the training of Chinese personnel as horseshoers. By the fall of 1944, veterinary officers had given formal instructions to approximately 750 Chinese personnel in the training centers at Rāmgarh, India, and in China at K'un-ming, Ta-li, and Yen-shan. Others were trained in the unit horseshoeing shops which were supervised by veterinary officers and veterinary animal service detachments that were attached in a liaison capacity to the various Chinese armies and divisions. Instructional activities, as well as the establishment of the Chinese horseshoeing shops, were extraordinarily difficult owing to lack of horseshoe-making equipment, which had to be improvised; in fact, it was not until after May 1945 that limited quantities of such equipment of U.S. origin began to arrive in the China theater.

The horseshoe supply comprised another major problem in the horseshoeing situation of the Allied Chinese forces. While some shoes were available from local sources and were used, the increased military demands were largely satisfied through horseshoe factories established and operated by the Army Veterinary Service in Kuei-yang and Chih-chiang; these supplemented a larger factory that was established in K'un-ming. Eventually, they were turned over to the control of the Services of Supply, Supreme Headquarters, Chinese Army. This local development of the horseshoe supply had been made necessary under the condition that the requirements when first made totaled 250,000 shoes per month—a quantity that could not well be flown over the Himalayan Hump even if they had been requisitioned from the United States. Horseshoe nails, unavailable in the quantity or quality desired, were brought into the China theater in amounts totaling as much as 10,000 pounds per month by June 1945.

DISPOSITION OF ANIMALS

It must be understood that veterinary care and management was continuous for the horses and mules throughout their life of service in the Army. This was discontinued or terminated only with their death, their removal from active military service on account of age or physical disability, or other disposal when no longer needed by the Army. The deaths of Army horses and mules due to disease and injury have been referred to as "veterinary losses," which numbers included also the animals destroyed on account of their having, or developing, physical disabilities which had made them militarily unserviceable. During the war (for the years 1941 through 1945), such veterinary losses totaled 12,916 horses and mules which had died or were destroyed on account of disease and injury. Other animals were destroyed but for nonpathologic causes such as old age or as being temperamentally unfit. Destruction ordinarily was the prerogative of command and was accomplished under prescribed administrative procedures of I.C. (inspection and condemnation). I.C. animals, however, were not always destroyed because

they, as much of the other Army property and supplies which had become unserviceable, could also be sold or transferred. Another animal disposition procedure was that concerned with the transfer or sale of those which were surplus to military needs, as occurred in the dismounting of cavalry units during World War II. In the Zone of Interior only, disposal sales, aggregating 17,000 animals surplus to Army needs, were conducted at the Army remount depots during the war, and another 9,400 animals (including some previously transferred to the Coast Guard) were sold at the camps (*64*). Other thousands of animals that were not otherwise issued or transferred to Allied military forces in the oversea theaters were disposed of locally by sale or turnover to foreign governments, the United Nations Relief and Rehabilitation Administration, or the Foreign Liquidation Commission.

The major veterinary considerations in the death, destruction, and other disposition of Army animals were: (1) The investigative study of the cause of death of any animal, (2) the sanitary disposal of cadavers, (3) the giving of professional opinion on the physical disabilities of sick or wounded animals, (4) the conduct of euthanasia or protective humane care over experimental animals, and (5) the certification of the physical health of animals being transferred from the military service.

Whenever an animal died or was destroyed, the method selected for the disposal of the animal cadaver was not only recommended but was also supervised by the veterinary officer. Where profitable, Army salvage plants could be operated or the cadavers could be removed by civilian contractors, the latter being expressly cautioned to comply with applicatory civilian regulations and to operate in a manner which would not disseminate infectious disease. Any animal, dying or destroyed because of anthrax, glanders, rabies, surra, or other disease of equivalent hazard to troop health or to animals, was burned or buried immediately, and this was followed by a program of veterinary disinfection and quarantine.

When animals became unserviceable, I.C. procedures were taken to remove them from the Army. Being a function of command, these procedures were performed by inspectors general or other specially designated officers of the Army. The latter could dispose of unserviceable horses and mules by transfer to another Federal agency, by sale, or by destruction. The disposition by destruction was mandatory under conditions where it would terminate suffering from disease and prevent contagion; or where the animal had an incurable disease or injury, was totally blind, or was too old; or for other good and sufficient reason; or where to sell it for work in the hands of irresponsible persons would be cruel and cause suffering to the animal. In these disposition procedures, the veterinary officer assisted the inspectors general in evaluation of the degree of liability an animal had become, frequently applied the I.C. brand to the animal being sold or transferred, and, more often than not, actually destroyed the animal. By regulations of the Army, this destruction was accomplished in a humane manner, preferably

by shooting. The Army Veterinary Service supported these inspection and condemnation procedures to the extent that the removal of unserviceable animals was reflected in the improvement of the physical efficiency of the Army's horse and mule strength.

The disposition of I.C. animals was variable and changed from time to time. During World War II, inspection and condemnation procedures emphasized the removal of a large number of aged animals which were carried over from the preceding peacetime period when they could not be disposed of, though unserviceable, because of the lack of sufficient congressional appropriations to procure replacement animals. The wartime mounted units also required a more serviceable animal, and in the oversea theaters serviceability alone was not always adequate; a combat serviceable horse or mule was demanded, which meant that unusually stringent inspection and condemnation procedures were imposed. In the Zone of Interior, particularly, the Army made use of many unsalable I.C. animals in the feed supply for Army dogs, the animals being slaughtered under veterinary supervision. Others were sold.

The disposition of Army animals surplus to military needs came at an early period in World War II when the thousands of horses, which had been procured in the emergency periods, were not sent overseas from the Zone of Interior. The dismounting of Cavalry that began in the spring of 1942 and the later stress on more mule transport were the cause for conducting horse sales that eventually led to the closeout of the quartermaster remount depot at Front Royal by the middle of 1944. After the end of the war, Army mules became as much surplus as had the horses. An estimate of the numbers surplus to the military needs is possibly reflected in the downward trend of the entire Army's animal strength from an annual mean average of 44,696 for 1941 to 19,939 for 1945. The disposal of the surplus animals involved certain economic, public health, and political considerations, the one of veterinary importance being that no such animal would introduce or disseminate animal diseases into agricultural livestock populations, whether of the United States or a foreign country. Another consideration was that the animal would be physically healthy or serviceably sound so that no buyer or recipient of a surplus animal could complain about its lack of general usefulness.

During World War II, the animals were declared surplus to the Procurement Division, U.S. Department of the Treasury, and its wartime successor agencies, including the War Assets Administration, which actually conducted most of the dispersal sales in the Zone of Interior. The latter, during July 1947, expressly asked that only those animals examined and found to be sound by Army veterinary officers would be declared surplus for sale (*65*); the degree of soundness referred to an animal which was serviceably sound. However, the veterinary certificate of soundness was not to refer to a disease or injury which required microscopic, laboratory, or radiological

examination to determine its existence. About 7 months later, the War Assets Administration relaxed its requirements and announced that both sound and unsound animals could be declared surplus to that agency, each with a proper veterinary certificate (*65*). Since the Army could not reasonably be expected to supply to that agency those animals found to be unserviceable or unusable, regardless of the degree of unsoundness, these animals were disposed of pursuant to the existent military administrative procedures governing inspection and condemnation. Though the veterinary certificate of soundness had become the major criteria in the post-World War II disposals of Army animals, individual veterinary officers, however, continued to render veterinary health certificates on the animals just as had been accomplished with such satisfactory results against the spread of disease after World War I.

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CHAPTER XV

Transportation of Animals

During World War II, the animals of the Army were transported in a number of ways: By road marching, in railroad cars, on transports (ships), by motor vehicles, and in airplanes. The first two means were used extensively in the movement of animals overland prior to World War I. In connection with the transportation by motor vehicle, records of World War I point to the common existence of veterinary ambulances, but many years passed before motorized portée was tried in maneuvers as a means of tactical deployment of mounted units. The transportation of an animal on an airplane was given headline news in veterinary publications during the late twenties (*1*), but it was not until World War II that this was used under the conditions of a tactical deployment.

The transportation of animals, regardless of the means, proved a veritable hardship on animals. However, with proper care and management, animals were moved or transported—covering great distances and involving long periods of travel time—without seriously lessening their physical condition or without too great a loss from disease and injury. A certain loss of animals was normally expected, but the experiences of World War II indicated that such losses can be minimal, such as 2.6 percent losses of animals when road marched in the tropical jungle areas of southeastern Asia, 0.25 percent in railroad shipments in the Zone of Interior, less than 0.3 percent in long-distance overwater movements, and almost no losses when animals were transported by airplane. An aggregate 60,000 horses and mules—U.S. and Allied—were involved in these movements. Whatever the means of movement, the successes in World War II involved the practice of certain veterinary principles. These included the examination of animals for physical condition prior to embarkation, the technical supervision over those methods and facilities which had a bearing on animal health, and the duty assignment of personnel to accompany the animals while en route.

TRANSPORTATION BY SHIP

The principles of veterinary service concerned with the overwater movement of animals in World War II were developed during World War I. The practice of these principles was the assigned responsibility separately of the port veterinarian, the veterinarian of the animal embarkation depot, and the transport veterinarian. Of course, the port veterinarian was recognized as the central coordinating officer. Their responsibilities were described in AR (Army Regulations) 40–2055, 4 March 1922, and AR 40–2060, 4 March 1922. The two peacetime regulations were rewritten into the superseding

AR 40–2055, 29 September 1942, but no changes were made on the assigned functions of the Army Veterinary Service.

During World War II, animal shipments originated from four ports of embarkation in the Zone of Interior (Los Angeles, Calif., New Orleans, La., New York, N.Y., and San Francisco, Calif.) and from a dozen or more points in two oversea theaters (the South and the Southwest Pacific Areas). The animal embarkations at New York included 2,227 mules which were procured by the Indian Army Supply Mission [1] under the U.S. lend-lease program of supply to the United Kingdom (*2*, *3*). With the exception of the shipments from ports in Australia (Brisbane, Melbourne, Newcastle, and Townsville) of 2,525 horses to New Caledonia during 1942 and of 2,336 horses to the China-Burma-India theater, the veterinary services at all embarkation ports were somewhat alike. The situation in Australia was occasioned by shortages in the numbers of Veterinary Corps officers (1942) and by the imposition of civilian export and quarantine procedures on demands of the Australian Government.[2] Altogether, port loadings under the technical supervision of the Army Veterinary Service totaled 15,000 horses and mules, this number including the aforementioned lend-lease mules which were shipped to India.

Port veterinary service ordinarily began with the inspection of the animal transports and the technical supervision over their cleaning and other preparations for each voyage. The transport inspection, also conducted after the loading of the animals but just before the ship's departure, was made on a variety of details which had a bearing on animal health and management as follows: The ship's capacity and stall accommodations; loading and unloading facilities; feeding, watering, lighting, and ventilating systems; sanitary and waste disposal facilities; quantity and quality of the feed and water supplies; equipment and ship's fittings; and facilities equipment to care for sick and wounded animals. The veterinary space requirements were expressed as 5 percent of the number of stalls on shipboard; these stalls were conveniently located near the hatchways. Timely reports of veterinary transport inspections were rendered to the port commanders for such corrective action as was indicated. Generally, such reports were favorable; of course, certain deviations from the most desirable facilities and systems were tolerated in view of the fact that none of the American animal transports in use during the war was constructed for such use; at least 18 of them (with a carrying capacity for 6,600 horses and mules) were converted vessels.[3]

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[1] Actually, the shipments were made from the stockyards, Jersey City, N.J., originally with the technical assistance of the port veterinarian, New York Port of Embarkation, but later the Army Veterinary Service, Second Service Command, assisted in the embarkation of these mules.

[2] The difference between the 15,000 animals loaded under the supervision of the Army Veterinary Service at ports and the total number of horses and mules embarked was occasioned by the fact that approximately 5,000 animals did not come under the supervision of the Army Veterinary Service until after they had been loaded on animal transports.

[3] Between the two wars, the U.S. Army Transports *Dix, Meigs, Kenowis,* and *Ludington* were used in the transportation of animals; however, they were not used as such during World War II.



SC NOPE 1437–1–45

FIGURE 50.—The S.S. *Virginian*, converted animal transport used in World War II.

As a matter of fact, many of these conversions—made by the War Shipping Administration and involving for the most part the Liberty EC–2-type ship—were based on plans which were reviewed by port veterinarians. A larger proportion of the converted transports had stall capacities of 320; a few could carry more than this number of animals, the S.S. *Virginian* having the greatest carrying capacity (679 stalls) (fig. 50).

Another prerequisite to overwater shipping was the selection and preparation of the animals. These actions usually were begun at the quartermaster remount depot which shipped the horses and mules to the port or to the latter's animal embarkation depot. By regulatory authorization, no disabled, unserviceable, or unsound animals were moved into a transport, and such animals, if not withdrawn previously, were rejected on the recommendations of the port veterinarian during the actual loading operations. The preparations included the shoeing of the animals (usually on the front feet only), the clipping of the hair coat, and special feeding and watering in the 2 or 3 days preceding embarkation. The individual record cards of the animals were reviewed as to the status of the prophylactic immunizations against equine encephalomyelitis, in the Zone of Interior only, and against tetanus, and of the mallein test for glanders (within the preceding 21 days). During the latter part of the war, on request of the Army Veterinary Service in the China-Burma-India theater, animals scheduled for oversea movement were routinely

vaccinated against anthrax. Because a greater part of this selection and preparation was accomplished in the quartermaster remount depots during World War II, no large port embarkation depots came into existence—at least, none which were comparable to those established at Newport News, Va., and Charleston, S.C., in World War I (*4*). However, two animal embarkation depot facilities were established and operated by the Army Veterinary Service: The Animal Depot, Puente, Calif., of the Los Angeles Port of Embarkation (*5*) and the Animal Remount Station, Camp Plauche, La., of the New Orleans Port of Embarkation (*6*). Animals for the San Francisco port were held at the Presidio of San Francisco, Calif., under the control of the Ninth Service Command (*7*). In the oversea theaters, movements were usually made directly to the transports from the field remount depots. The lessening dependence on animal embarkation depots during World War II was conditioned by the fact that no unexpected withdrawals or shortages of ships were experienced which necessitated the holding of large numbers of animals for a long period of time and that no newly purchased, or "green" (unconditioned) animals, which were highly susceptible to the shipping fever complex, were sent to the ports.

The port veterinarian also exercised a technical supervision over the veterinary service on the animal transports. This service included the development of standing operational procedures which were used on shipboard: the selection, training, and assignment of veterinary transport personnel: and the provision of veterinary equipment and supplies. In World War II, these personnel on the transports included specially qualified personnel of the port veterinarian's office or the veterinary units and animal service detachments which were en route to an oversea theater. The temporary detail of so-called casual personnel to accompany the overwater movements of animals was avoided.

Once en route, the transport veterinarian was responsible for the sanitary discipline in that part of the ship occupied by the animals, and he technically supervised the care and management of the animals, including their feeding, watering, exercising, and treatment. In these activities, the transport veterinarian was provided a detachment of enlisted personnel including a staff sergeant and a private (or private first class) for each hundred animals on shipboard, and an additional noncommissioned officer for each four privates. The detachments established a routine as soon as the transport departed from the port, and this routine was continued throughout the voyage. There were a variety of details to attend to, such as the covering of floors to improve foothold, removal of manure and flushing of decks, adjustment of the ventilating system, use of chloride of lime saturated cloths to counteract the ammoniacal urine odors, special and reduced feeding, and the care and treatment of sick and injured animals.

The actual losses of horses and mules on board animal transports which were accompanied by the Army Veterinary Service during World War II were less than 0.3 percent of the 20,815 animals involved: that is, only 60 animals

died or were destroyed on account of disease and injury (table 43). An additional 1,152 animals were lost in the sinking of three transports—the S.S. *Jose Navarro*, the S.S. *Peter Silvester*, and the USAT *Tjinegara*. Records and reports are not available to complete a study on specific diseases and injuries which were encountered on all voyages of the animal transports. At least 18 shipments were completed without any losses; in others, more difficulties were encountered. For example, of the 77 cases reported on the shipment of 648 mules and 6 horses on the S.S. *Mexican* en route for 58 days from the New Orleans Port of Embarkation to Calcutta, India, during the fall of 1944, there were 57 cases (3 terminating in death) of heat exhaustion, 19 cases (1 ending fatally) of gastrointestinal disturbances, and 1 nonfatal case of tetanus. Then, in a 28-day shipment of 640 former Australian Army animals to Calcutta, India, on the S.S. *Virginian*, the U.S. transport veterinarian reported

TABLE 43.—*Movements and losses of horses and mules on animal transports accompanied by the U.S. Army Veterinary Service* [1]

Destination of transport	Number of shipments	Number of animals		
		Embarked	Veterinary losses	Lost by enemy action
From Zone of Interior to:				
Central Pacific	2	916		
South Pacific	1 and a partial	400		
Southwest Pacific	3	1,523	2	
Mediterranean	7	2,885	4	
China-Burma-India	20 and a partial	[2] 7,679	17	675
From South Pacific to:				
China-Burma-India	5 and a partial	2,334	21	
From Southwest Pacific to:				
China-Burma-India	9	[3] 3,364	15	
South Pacific	1	[4] 477		477
From Panama Canal to:				
South Pacific	A partial	381		
Zone of Interior	2	265	1	
From European to:				
Zone of Interior	1	152		
Unknown	2	439		
Total	55	20,815	60	1,152

[1] Involves only the intertheater overwater movement of both the U.S. and Allied military animals. The total 20,815 animals, which were embarked, included 5,420 horses and 15,395 mules; losses on account of disease and injury (that is, veterinary losses) totaled 38 for horses and 22 for mules.

[2] Includes 5 shipments, totaling 2,227 mules, which were procured by the India Supply Mission under the U.S. lend-lease program of supply to the United Kingdom.

[3] Includes 6 shipments and 2 partial shipments, totaling 2,336 horses, which had been procured originally (by purchase and reverse lend-lease) and then transferred from the U.S. Army to the Australian Army which then transshipped them from Australia to the U.S. Army in the China-Burma-India theater.

[4] Excludes 9 shipments, totaling 2,048 horses, which were procured in Australia and shipped on an Australian transport accompanied by Australian personnel to the U.S. Army on New Caledonia.

53 cases of disease and injury, including 9 cases of strangles and 24 contused and lacerated wounds; in addition, 1 mare foaled.

In a report on 438 cases for the 4-year period, 1942–45, of the diseases and injuries of Army horses and mules on animal transports, the animal strength involved in the appearance of these cases is unknown, but the case mortality rate was more than 5 percent. These 438 cases of disease and injury, by species of animal, included 116 horses, of which number 16 cases were terminated by the death or destruction of the animal, and 322 mules, including 7 fatal cases. No one disease or injury constituted an entity that could not be expected among animals which were closely confined for long periods of time (up to 65 days) in an environment of extreme heat (up to 110° F.) and humidity. The more common ailments were heat exhaustion, gastrointestinal disturbances, abnormal conditions of the feet and legs due to long-continued standing on wet floors (urine and salt water), and many kinds of injuries caused by biting, equipment, or slipping. The shipping fever complex was not observed among animals on transports loading out of the Zone of Interior, and no serious animal disease was reported.

On arrival at destination, the transport veterinarian's responsibilities terminated with the debarkation of the animals. Routinely, the debarkation procedures were jointly observed by him and by the veterinary officer of the receiving port or other oversea command. Quite frequently, civil quarantine officials observed the debarkations to satisfy themselves that the Army was not "landing" a disease. However, there was no report of such introduction of new diseases into any area where the Army Veterinary Service alone technically supervised the overwater movements from and including the port of embarkation to the point of destination. The unloadings were made in a variety of ways as follows: By ramps, by flying box stall, by sling, by rope nets, in the Mediterranean theater (fig. 51) (*8*), or by transfer to intermediary barges or boats which operated between the ship and shore in the South Pacific Area.

Another method of unloading from transports was by swimming the animals to shore. However, due to the hazards of such an undertaking, this was seldom considered except in training for amphibious assaults. It was tried during the joint Army-Navy maneuvers in the Hawaiian Islands during the early thirties (*9*), and again in the Central Pacific Area during World War II, in connection with a plan, later discontinued, that called for landing pack mule troops during an amphibious assault on a Japanese enemy-held shore (fig. 52). A combat landing procedure that was used successfully by the 36th Infantry Division in the Mediterranean theater, at Anzio, Italy, 20 May 1944, involved the loading of animals into trucks, these trucks then moving into and out of LST's (landing ship, tank) (*8*).

The overwater transportation of animals was described in the terms of intertheater movements. However, intratheater movements, including the combat amphibious methods of unloading, were conducted under much the same degree of technical supervision by the Army Veterinary Service. Ob-



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FIGURE 51.—Loading mules by rope net at Naples, Italy, September 1944.

viously, because of the shorter travel periods and distances covered, the intra-theater movements were made ordinarily without animal losses or without evoking problems of foreign quarantine. In the Central Pacific Area, a few animals were moved from Oahu to Hawaii and Kauai, and livestock were moved to establish "living-food reserves" or animal farms on Canton and Christmas Islands. In the South Pacific Area, the Veterinary Detachment, 97th Field Artillery Pack Battalion, assisted in the movement of the battalion's 753 mules and 194 horses from New Caledonia to Guadalcanal—this being made in three shipments leaving on 16 January, 4 March, and 6 April 1943 (*10*, *11*). After V–J Day, in the China theater, the Army Veterinary Service cooperated with the Navy in the modification of LST's (each with a carrying capacity for 220 but not exceeding 285 animals) and in the movement of several thousand Chinese military animals along the China coastline (*12*, *13*). An even greater activity in the movements of animals occurred within the North African and Mediterranean theater. Aside from the aforementioned movement of the U.S. 36th Infantry Division's pack train from Salerno to Anzio, thousands of Allied military horses and mules, and sheep for feeding British and French colonial troops, were unloaded under the technical supervision of the Army Veterinary Service in the port at Naples,



FIGURE 52.—Training for amphibious landing.

Italy (*14*). In the period from February through April 1944, ship arrivals numbered 23, and 1,261 horses, 5,760 mules, 310 sheep, and a few cattle and dogs were disembarked (*15*). The U.S. 8th Port, replacing the U.S. 6th Port at Naples, in mid-1944 processed 31 animal transports during the last 6 months of that year; 13,650 animals were embarked, and 10,118 animals were disembarked (*14, 16*).

TRANSPORTATION BY RAILROAD

The transportation of horses and mules by railroad—"at best * * * a wrecking ordeal" (*17*)—was accomplished in World War II with a minimal

amount of animal losses. In a series of all veterinary reports covering 135 shipments during 1945 in the Zone of Interior, 9,500 Army horses and mules were moved by railroad [4] with the loss of only 5 animals (or 0.05 percent) (*18*). In another series of reports, covering the entire war period, on 48 shipments [5] that were selected because each involved more than 200 animals or a travel period of more than 3 days and were accompanied by a Veterinary Corps officer, the losses numbered 64 horses and mules or 0.25 percent of the 25,072 animals which were involved (*18*). In this series of 48 railroad shipments, 39 were completed without a loss, and 1 shipment alone accounted for 51 animal losses. These successes reflected the efficacy of animal care and management in rail transport.

The later successes in the transportation of animals by railroad evolved about the application of the same principles of animal care and management that were perfected on the overwater movements: namely, the preshipment examinations of animals, technical supervision over the transportation methods and facilities, and the duty assignment of personnel to accompany shipments in transit.

In rail transport, the health of the animals was given primary consideration. Thus, veterinary technical supervision over such transportation began at the point of origin of the shipment. This included the physical examination of animals prior to shipment and certification as to their health, the inspection of the transport methods and facilities, the assignment and training of veterinary personnel who accompanied the shipment to destination, and the review of the train schedule and routing. By the regulations of the Army, a minimal 48-hour period was given to the Veterinary Corps officer at the point of origin. The professional examination of the animals was made to withdraw those which were sick or infected with a serious contagion (such as glanders), and as a prelude to the rendition of the veterinary health certificate. This certificate was normally accepted by the railroads and by the various State or other disease regulatory agencies as proof that precautions had been taken within the Army to minimize or prevent the dissemination of animal diseases. Of course, the Army Veterinary Service inspected the railroad cars as to their suitability, state of repair, and sanitary condition before the loading operations were started. The railroad was responsible for the cars being kept in good condition, cleaned and disinfected, and bedded with a floor cov-

[4] The average shipment approximated 70 animals, but 14 shipments comprised more than a hundred animals (including two of 700 animals each, and others with 696, 588, 468, and 440 animals). The smaller shipments were unaccompanied by veterinary personnel.

[5] The salient features of the 48 shipments were averaged as comprising a 90-hour shipment of 522 animals. The largest shipment included 1,258 horses departing on 14 June 1942, from Fort Riley, Kansas. Two 8-day shipments included one departing on 9 February 1944, from Fort Robinson, Nebr., for Los Angeles, Calif., and another departing on 25 December 1944, from Fort Reno, Okla., for Jersey City, N.J. A long-distance movement involved the 99th Field Artillery Pack Battalion, departing on 22 July 1942, from Fort Bragg, N.C., for Camp Carson, Colo. This series included the shipment of those mules, accompanied by Veterinary Corps officers, that were procured by the Indian Supply Mission under the U.S. lend-lease program of supply to the United Kingdom.



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FIGURE 53.—Unloading of horses by Troop B, 252d Quartermaster Remount Squadron, Camp Polk, La., for Third U.S. Army maneuvers in the fall of 1942.

ering of sand or straw; on request, the carrier covered the cars with paper or other material to protect the animals in transit from exposure to cold.

The loading of the railroad cars was conducted in an orderly manner. Whenever obtainable and justified, Arms-Yager horse cars were used;[6] however, most shipments were made in open (or slatted) stock cars of the kind which were used in the normal civilian traffic of livestock (fig. 53). Usually, 22 riding-type horses or pack-type mules were loaded onto a 36-foot stock car, and 25 animals onto a 40-foot stock car. These car loadings were reduced in hot weather and where heavier weight animals were loaded. The interchange of car sizes in a train led to difficulties in the "spotting" of the car doors at unloading ramps of certain rest stations and terminals (*19*). The train length (or number of cars) was regulated by the capacity of the feeding, watering, and rest stations and the unloading facilities along the route of travel and, before World War II, was expressly limited to 30 cars per train. However, during the war, the train length was not limited, but a proportionally greater number of injuries was observed in animals of the longer trains when routed through mountainous areas (*20*).

[6] The Arms-Yager Palace Horse Car was equipped with 18 stalls, feed mangers, and water tanks; the Arms-Yager Commercial Horse Car was divided into three large compartments without stalls.

Following the departure of the train from the point of origin, the accompanying veterinary personnel became responsible to the train commander for the conduct of the professional and supervisory veterinary service to the animals in transit. In the movement of mounted units to maneuver areas or ports of embarkation, this service was rendered by the relevant veterinary detachments; sometimes, movements from the remount depots were accompanied by separate veterinary detachments which proceeded with such horses and mules to their final oversea destination. In the instance of shipments of casual animals, the assignment of these personnel was the responsibility of the point-of-origin veterinarian; however, after August 1943, the Quartermaster General's Office required that casual shipments of a hundred or more animals originating from the remount depots would be accompanied by a Veterinary Corps officer, and by a veterinary enlisted man [7] when the shipments comprised a lesser number of animals (*21*). Their principal activities were centered at the feeding, watering, and resting stations, or stockpens, along the route of travel. In this connection, it must be remembered that the routing and schedule for the shipments were developed at the point of origin, with special consideration of the adequacies of the railroad stockpens along the route as enabled a stopover at intervals of 20 hours of train travel but not exceeding 28 hours. Such scheduling was mandatory by the so-called 28-hour law. From the records which were available, violations of this law were exceptional during World War II. In fact, no violations were reported in 1941; in 1942, only one [8] was reported (*22*). At the stopover points, preparatory to the unloading, the accompanying Veterinary Corps officers conducted a sanitary inspection of the pens, chutes, yards, feed racks and mangers, and water troughs, and examined the feed and water supplies (figs. 54 and 55). The carrier was normally responsible for the cleanliness and disinfection of these facilities and for providing the necessary feed and water.[9] Whenever possible, prior arrangements were made with the Bureau of Animal Industry, U.S. Department of Agriculture, to supervise this cleaning and disinfecting by the railroads, but where that agency's inspectors were unavailable, the Army Veterinary Service alone was responsible for obtaining corrective action, if indicated, by the railroad before the animals were detrained. As the war progressed, the standards of stockpen cleaning and disinfection were lowered when the general manager of a railroad indicated the carrier's inability to meet the military requirements because the facilities along the route were actually owned by private companies which could not or would not clean and disinfect (*23*, *24*). In a recommendation to the Chief of Transportation, and approved by him, the Veteri-

[7] Before August 1943, it seems to have been a policy or practice to detail a veterinary enlisted man to accompany shipments of officers' private mounts and Army remount stallions.

[8] This involved the shipment of animals from the Fort Robinson, Nebr., remount depot to the San Francisco, Calif., port, during December 1942. The train was sidetracked by higher priority traffic; what was a normal 27-hour trip became one lasting 40 hours.

[9] The railroad carrier provided all feed and forage to the animals while en route, except in cases of less-than-carload shipments and in the movement of mounted units with their own animals.



FIGURE 54.—Unloading stock cars at Puente, Calif.

nary Division, Surgeon General's Office, on 17 August 1943, suggested that in these cases the railroad need only maintain the stopovers in a "satisfactory state of sanitation."

In a summary of the specific causes of animal losses encountered in the transportation of animals by railroad during World War II, the statistical data are limited necessarily to 9 of the aforementioned 48 shipments, wherein 64 animals died or were destroyed, and to an additional 3 shipments which were unaccompanied by Veterinary Corps officers. The losses among these 12 shipments totaled 96 animals—including 9 found dead in the railroad cars, 6 left at or dying in stopover stations, and 81 dying after arrival at destination. Of the total losses, 86 were attributed to exhaustion from overexposure and equine influenza; 4 to gastroenteric disturbances; and 1 each for pneumonia, hemorrhagic septicemia, suffocation, wound, fracture of cervical vertebrae, and unknown causes. Actually, the greater proportion of these losses was encountered in but 3 of these 12 shipments; 15 were lost in a shipment of 540



FIGURE 55.—Mule being processed for oversea shipment. During their stay at the animal depot, the horses and mules were exercised daily and were processed for oversea shipment, including clipping of hair coats, mallein testing for glanders, and checking of the condition of their teeth.

horses, 16 were lost in a shipment of 551 horses, and 51 were lost in a shipment of 370 mules.[10]

The transportation of horses and mules by railroad in the oversea theaters was an entirely different matter. In World War II, this method of transporting animals was used in the India-Burma and the China theaters and in Australia where newly procured horses were shipped into the remount depot at Townsville. The latter rail shipments were made frequently with little regard for the proper handling of these horses in transit—thus contributing to the unusually high rates of incidence and animal losses from equine influenza that were experienced in the remount depot during the early part of 1943 (*25*, *26*). The situation in India was without comparison—after 8 to 10 days' continuous travel, the animals could not be reconditioned within 30 days (*27*, *28*). In India, dependent upon the railroad gage, 6 to 10 animals were loaded on a single freight car or so-called animal wagon. Within each car, the animals were placed in both ends and faced toward the car's center where they

[10] The two horse shipments were made from the Fort Robinson, Nebr., remount depot to Camp Lockett, Calif., in the early spring of 1943; the mule shipment was made from the same depot to Jersey City, N.J., in the winter of 1944–45. Veterinary Corps investigations of the shipments determined that the losses were caused by exhaustion from overexposure or equine influenza as the result of long periods of train travel (6 to 7 days) and exposure to subfreezing weather.

were fed and watered. The interior heat of the cars, which were constructed of steel and without adequate ventilation fixtures, and the irregular and limited availability of water along the route of travel caused the development of gastroenteric disturbances in many animals. In the northeastward movement from Calcutta, India, of those American horses and mules which came from the Zone of Interior and the South Pacific and the Southwest Pacific Areas, the animals were unloaded from the cars only to change to a railroad of another gage track and at certain river crossings. However, to complete their 1,450 mile travel into Burma, the same animals also were herded or trucked. In China, the 19th Veterinary Evacuation Hospital assisted in the technical supervision over the tactical movement by rail of 5,000 Chinese military animals eastward from K'un-ming to Chan-i during the late summer of 1945 (*29*).

TRANSPORTATION BY TRUCK

During World War II, a large number of horses and mules were transported by truck in the Zone of Interior and overseas in the Mediterranean and the China-Burma-India theaters. Regulatory controls, such as those which governed the transportation of animals by ship and railroad, were not placed over this shipping. However, where this shipping was accomplished with proper regard for the health of the animals, no serious difficulties were experienced. In the Zone of Interior, for example, veterinary reports covering 87 separate shipments during 1945 indicated that 724 horses and mules were trucked from purchase points, remount depots, and Army camps without any animal losses (*18*). In the Mediterranean theater, animals of the provisional pack trains and U.S.-supervised Italian pack mule companies were moved successfully in the Fifth U.S. Army area on standard trucks which were specially equipped with stock racks. Later, the veterinary evacuation plan for that Army's 10th Mountain Division operated to send replacement animals forward on the same trucks that were used to collect and evacuate animal casualties (*30*) (figs. 56 and 57).

Truck transport was used also in the India-Burma theater and in China. In the China theater, a special plan was developed to move the animals of the American-sponsored Chinese armies and divisions by a "block" or convoy system (*29, 31*). Though it was invaluable for moving equipment and supplies, the convoy system proved so disastrous to horses and mules that the Army Veterinary Service recommended discontinuance almost as soon as it was started (in April 1945). No imagination is required to understand that the careless and rapid handling by inexperienced drivers of the trucks in such convoys, which stopped only at scheduled relay points along the way, would cause animal losses. On the curving dirt roads, the trucks turned over, or, on arrival at their destination, some of the animals were dead or in a comatose condition. Such losses approximated 10 percent of the animals in a single shipment by truck convoy.



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FIGURE 56.—Fifth U.S. Army truck at an animal ambulance loading point, Costel De Rio, Italy, 30 September 1944, accepting a load of wounded animals for evacuation to a veterinary hospital.

TRANSPORTATION BY AIRPLANE

An innovation in the military transportation of horses and mules during World War II was the use of the airplane. In three separate situations, more than 7,000 animals which belonged to the Allied-sponsored Chinese military forces were transported by airplane in the China-Burma-India theater (*27*, *29*, *32*, *33*). Previously, this means of moving mounted units and animals was seldom studied. In 1932, however, the veterinary officer instructor at the Cavalry School, Fort Riley, Kans., expressed the thought—"it is not unreasonable to assume that in a relatively few years we may expect to witness the practical rapid movement of limited numbers of horses by airplane or dirigible" (*34*). Many years later, during May 1943, an original actual test on the movement of a mounted unit was conducted on New Guinea (in the Southwest Pacific Area) by the 98th Field Artillery Pack Battalion and the 374th Troop Carrier Group (*35*) (fig. 58).

A year and a half later, the Army Veterinary Service in the India-Burma theater assisted in the planning for an "over the Himalayan Hump" movement



SC 5/MM-44-5345

FIGURE 57.—Fifth U.S. Army truck at Scarperia, Italy, in September 1944, loaded with mules for transport into the frontlines, showing side stock racks of the truck and methods of tying the halter ropes.

of animals which belonged to the U.S.-trained Chinese New Sixth Army.[11] This Allied Force, then in Burma, was urgently needed in the operations that led to the clearing of portions of the China side of the Burma Road which had been held by the Japanese enemy. The U.S. 7th Veterinary Company (Separate) and a detachment of the 19th Veterinary Evacuation Hospital supervised the original shipments and actually loaded the airplanes at the Sahmaw and Nansin fields in Burma (fig. 59). In two series of shipments completed by February 1945, the animals which had been airlifted into China totaled 2,213 horses and mules. The same group of animals, then numbering 2,154, were airlifted during April and May 1945 within China, from Chan-i to Chih-chiang, in the operations to stem the Japanese advances on the bases of the Fourteenth Air Force. In the third airlift, or the second one over the Himalayan Hump, 2,751 animals of the Chinese 38th and 50th Divisions (of the Chinese New First Army) and a regiment were moved during July and

[11] The Allied British military forces originally used the airplane to transport animals in a tactical situation. In the spring of 1944, an airlift of 1,350 animals was made during Wingate's second expedition in Central Burma.



FIGURE 58.—Experimental trials on the feasibility of airlifting a field artillery pack battalion, New Guinea, May 1943.

August 1945 from Burma into Nan-ning, China. Losses incident to these airlifts numbered two animals; one was fatally injured during loading and the other was destroyed en route when it endangered the safety of the airplane and its crew.

The type of airplane used in these operations was the Douglas C–47, each carrying four to six animals together with attendants, equipment, and a 5-day forage supply, but not exceeding 6,500 pounds per load. The floor of the airplane was covered with plywood sheets, over which was placed a waterproof paulin and a matting of straw. The animals were loaded two at a time and faced forward; as the loading progressed each two animals were fitted into a temporary stall, complete with front, rear, and top crossbars, made by tying or wiring bamboo poles together (fig. 60). An 18-inch space was allowed in the front of each pair of animals to provide headroom and space for the attendants. Loading was accomplished in 10 to 20 minutes and was made directly over the tailgates of trucks which were backed to the door of the airplane or by ramp. Prior to loading, the animals were newly shod, mallein tested for glanders, and their blood samples were examined for trypanosomiasis and piroplasmosis. Those animals which were unserviceable, sick or injured, or nervous in temperament were withdrawn from shipment. Once airborne, the



FIGURE 59.—Loading animals from truck to airplane at the Sahmaw, Burma, airstrip in February 1945 for "over-the-Hump" movement to Chan-i, China.

animals became quiet, dozed at altitudes of 14,000 to 20,000 feet, were unmindful of rough travel, and pushed forward instead of bracing themselves to the rear when the airplane lost altitude.

ROAD MARCH

The road march was one of the several methods used to move animals from one place to another. One of the most notable experiences of the Army Veterinary Service during World War II was had by the group of Veterinary Corps officers who accompanied the march of 5,397 horses and mules over the famous Burma Road and Stilwell Road from Central and North Burma into K'un-ming, China (*29, 36*). These animals belonged to the Chinese 22d and 30th Divisions, an animal transport regiment, and two engineer regiments, and to the following U.S. units: The Artillery Detachment of the 5332d MARS Brigade (including the 612th and 613th Field Artillery Pack Battalions) and the 31st, 33d, 35th, 37th, 252d, and 253d Quartermaster Pack Troops. The units were accompanied by their veterinary detachments and separate veterinary animal service detachments or by casual personnel totaling 15 Veteri-



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FIGURE 60.—U.S. Army airplanes were rigged with temporary, bamboo stall-like partitions in moving Allied-sponsored Chinese mounted units from Burma over the Himalayan Hump into China, 1944.

nary Corps officers, who with the Chinese mounted units comprised the only members of the U.S. liaison teams that accompanied them during this march. The departures from Burma of the march column—made up of about 20 serials (or groups of animals)—started on 2 May 1945, with the Chinese 30th Division out of Lashio and continued until 4 July 1945, when the Chinese Animal Transport Regiment cleared Myitkyina; animals began to arrive in K'un-ming after 22 June 1945. At one time, more than 80 percent of these animals were actually on the road.

Preliminary planning covered the survey of the animal feed and forage resources along the routes of march and in areas of planned deployment of the animals, the increase in the Chinese Army's animal ration to subsist the larger American mule and Australian horse, the reduction in the number of animals which carried pack loads to 50 to 75 percent of unit animal strength, the establishment of a rate of march at 15 to 20 miles per day, and the location

of overnight bivouacs along the road, including feed depots, first aid stations, and 1-day campsites for feeding, resting, and, if needed, reshoeing after every 3 days of travel (*29*, *37*, *38*). Much of the planning necessarily was made by the Army Veterinary Service against the original beliefs that the animals, each with a pay load of 250 pounds, should be marched at the rate of 25 miles per day until the destination had been reached. Preparatory to their moving out, the animals were examined for infectious disease, were newly shod, and grouped into serials of 200 to 300 animals each. Screening for unserviceability removed an estimated 10 percent of the animals from the units before they started the march. Whenever possible, animals showing a temporary disability were relieved of their pack loads or were moved by truck transport to the next bivouacs; others becoming actually sick or wounded were evacuated to a veterinary unit which accompanied the march or to one located at a terminus of the route (*39*, *40*, *41*). Such units included the 2d Platoon, 7th Separate Veterinary Company; the Veterinary Company E, 13th Mountain Medical Battalion; the 18th and 19th Veterinary Evacuation Hospitals; and the U.S. veterinary liaison group with the Chinese 2d Army at Pao-shan. Animals which were evacuated numbered 178 in the Chinese 30th Division (with 1,679 animals) and 98 from the U.S. field artillery and quartermaster pack units (with approximately 2,300 mules and horses). Many of these were returned to their units during the march, but others were transported by truck for the remainder of the distance.

The march of the 5,397 mules and horses in the moist, tropical heat of the jungles and mountains in southeast Asia proved as much a hardship on animals as it did on man. The American mule seemed to fare much better than the Australian horses and local tonga ponies which were in the same march column. Disabilities along the way included, for the greater part, exhaustion, contact abrasions and wounds due to pack saddle equipment, and lameness and foot troubles due to improper shoeing. Of course, there were a number of losses caused by landslides, falling off cliffs, drowning at river crossings, and theft. From the information which was available, the losses totaled 142 animals (or 2.6 percent) dying or destroyed on account of disease, as follows:

Cause of loss	*Number of animals*
Infectious and parasitic diseases:	
Anthrax suspect	1
Piroplasmosis	1
General diseases: Laminitis	5
Diseases of the nervous system:	
Paraplegia	4
Spasms (diaphragm)	1
Diseases of the circulatory system: Lymphangitis	7
Diseases of the respiratory system:	
Pneumonia, lobar	2
Pulmonary emphysema	1

Cause of loss	*Number of animals*
Diseases of the digestive system:	
Choke	2
Colic	6
Impaction and torsion	3
Peritonitis	2
Diseases of the skin and cellular tissues: Fistula	1
Diseases of the bones and organs of locomotion:	
Separations of frog and sole	3
Tendinitis	1
Injuries (violent and accidental causes):	
Dislocation	1
Drowning	4
Exhaustion (and emaciation)	41
Fracture of bone	10
Wounds	6
Miscellaneous	4
Unclassified	34
Total	142

This excluded the loss of an additional hundred or more animals after mid-August 1945 as the latter elements of the march column (composed of the U.S. field artillery and quartermaster pack units) approached their destination. In these animals, surra was uncovered, and an intense program of test and eradication against the disease was undertaken.

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CHAPTER XVI

Evacuation and Hospitalization

In the Army of World War II—the day of the jeep, armored force, and airplane—it may be a surprise to many to know that the Army Veterinary Service provided 2,065,289 days of hospital treatment to Army horses and mules,[1] operated a veterinary hospital system in the Zone of Interior that totaled a stall capacity of 2,500 for disabled animals, and developed animal evacuation plans for oversea theaters comprising 72 separate detachments, companies, and hospitals, and several provisional organizations (*1*).

The veterinary hospital was the central establishment, whether at a station in the Zone of Interior or in the field in a war theater, for the collection, shelter, segregation, care, and treatment of sick and wounded animals. In the U.S. Army, a reference to it may have been made as early as 1868 when the War Department ordered the establishment of an animal recuperation depot at Fort Leavenworth, in the military division of Missouri (*2*). The veterinary hospital system and animal evacuation plan that came into existence during World War I was studied, tried in maneuvers, and further perfected in the peacetime years following the Armistice and then was used when the need arose in World War II.

VETERINARY HOSPITAL SYSTEM IN THE ZONE OF INTERIOR

The veterinary hospital system in the Zone of Interior included stall accommodations for 2,500 horse and mule patients and was operated in a manner closely paralleling the Medical Department's hospitalization program for troops. The veterinary system included facilities located in more than a hundred camps, training centers, remount depots, purchasing and breeding zone headquarters, and ports. Together, these provided 1,700,769 days of hospital treatment during the 5-year period, 1941 through 1945 (*1*). A lesser number disabled animals were treated as stable cases and not admitted into the hospitals. These veterinary hospitals, for the greater part, were operated as a Medical Department activity under the control of the camp surgeon.

The beginning of World War II found the Army's horse and mule strength at about 22,000 and its veterinary hospital system comprising a patient capacity for 5.4 percent of the animal strength or 1,188 stalls. Of this number of hospital stalls, 970 were located in the Zone of Interior and 218 in the oversea departments. These stalls were distributed among 2 general veterinary hospitals, 41 station veterinary hospitals, and 32 veterinary dispen-

[1] During the preceding 5 peacetime years (1936 through 1940), hospital treatment days totaled 1,631,463. Sick and wounded animals not admitted to the veterinary hospitals were classified for treatment as "stable cases" and their total days of treatment (stable days) were considerably less than the number of hospital days of treatment.

saries (*3*), but those having accommodations for 10 or more animal patients numbered only 30 (table 44).

TABLE 44.—*Veterinary hospitals and dispensaries with animal patient capacities for 10 or more animals, mid-1940*

Location	Stall capacity	Location	Stall capacity
Zone of Interior:[1]		Zone of Interior (Cont.):	
Fort Bliss, Tex	90	Fort Belvoir, Va	24
Front Royal Remount Depot, Va	75	Fort Knox, Ky	22
Fort Francis E. Warren, Wyo	58	Fort Myer, Va	21
Fort Sill, Okla	55	Fort Hoyle (Edgewood Arsenal), Md	21
Fort Riley, Kans	51	Fort Leavenworth, Kans	20
Fort Brown, Tex	50	Fort Ringgold, Tex	20
Presidio of Monterey, Calif	49	Fort Snelling, Minn	18
Fort Robinson Remount Depot, Nebr	45	Fort Bragg, N.C	16
Fort Des Moines, Iowa	37	Fort Sam Houston, Tex	13
Fort Clark, Tex	35	West Point, N.Y	12
Presidio of San Francisco, Calif	35	Fort Sheridan, Ill	10
Fort Reno Remount Depot, Okla	31	Oversea Departments:	
Fort Ethan Allen, Vt	31	Fort Stotsenberg, Philippine	83
Fort Oglethorpe, Ga	28	Fort McKinley, Philippine	35
Fort Benning, Ga	26	Fort Clayton, Panama Canal	26
		Schofield Barracks, Hawaiian	20

[1] Additional construction during fiscal years 1941 and 1942 increased the ward capacities at Fort Bliss by 150, at Front Royal by 80, at Fort Sill by 30, at Fort Riley by 200, at Fort Robinson by 80, at Fort Clark by 30, at Fort Reno by 140, and at Fort Bragg by 110.

Source: Report, Veterinary Division, Surgeon General's Office, 1 June 1940, Stations and Service, United States and Foreign, Arranged in Approximate Order of Animal Strength.

Beginning in the fall of 1940 and continuing through the fiscal year ending 30 June 1942, a wartime building program added more than 1,450 stalls to the veterinary hospital system in the Zone of Interior (*4, 5*). The 2-year program—costing $933,500—included a veterinary hospital (10-stall); 17 dispensaries; 16 surgical clinics; 8 colic buildings; 54 medical, contagious, and surgical wards; and a variety of accessorial structures such as 2 autopsy slabs, 4 dipping vats, 3 squeeze chutes, 16 corrals, 18 sheds, and barrack accommodations for 482 enlisted personnel. These comprised the establishment of new hospitals and dispensaries at 12 Army camps (table 45) and addition to the existent facilities at 5 camps and the 3 remount depots. The additional construction at the depots included the expansion of the hospital ward capacities, and at Forts Bliss, Bragg, Clark, Riley, and Sill, included dispensaries, surgical clinics, and ward buildings. The 12 new veterinary facilities each in-

cluded a surgical clinic, one or more wards, sometimes a colic building and corral, and a few other structures; however, the facilities at Camp Carson and Camp Hale, Colo., were the larger of these and included also new dispensaries (4 and 10, respectively) for mounted units which were in training.

TABLE 45.—*Veterinary hospitals and dispensaries newly established in the construction programs, fiscal years 1941 and 1942*

Location	Ward capacity	Location	Ward capacity
Camp Bowie, Tex	20	Fort Jackson, N.C	50
Carlisle Barracks, Pa	10	Fort Lewis, Wash	60
Camp Carson, Colo	110	Camp Livingston, La	20
Fort Devens, Mass	20	Camp Lockett (El Campo), Calif	30
Camp Hale, Colo	190	Fort Ord, Calif	60
Indiantown Gap Military Reservation, Pa	20	Camp Peay, Tenn	20

Source: (1) Annual Report of the Surgeon General, United States Army. Washington: U.S. Government Printing Office, 1941, pp. 166 and 194. (2) Annual reports, Veterinary Division, Surgeon General's Office, U.S. Army, 1942.

The above construction program was completed with a degree of rapidity and ease that reflected favorably on the preparatory planning which had taken into account such matters as the determination of requirements and the development of construction plans. There were also matters of inspecting the buildings during construction, and, later, the assigning of operational personnel. The urgency of the moment in which these problems seemed to arise made necessary the finalization and centralization of many matters in the Veterinary Division, Surgeon General's Office. The latter alone could obtain firsthand information from the War Department staff on pending plans to augment the Army's horse and mule strength or to organize and train a mounted unit at a particular camp. The requirements were stated in terms of the kind, capacity, and location of the veterinary hospitals and dispensaries (*6*, *7*). Actually, the capacities of the facilities were not fixed, but were designed to include as many stalls as were needed to hospitalize 3.5 percent of the animals in a camp or unit and to provide 360.5 square feet [2] of corral space for each stall (*8*). The station veterinary hospital was designated ordinarily to serve the local camp of which it was a part, but where the requirements were quite small or were extended to include a large number of widely dispersed mounted units, the camp was provided with a dispensary only or with a number of dispensaries supplemental to the hospital. The latter were designated regimental dispensaries and served specific mounted units. The camps selected for the approved building program were recommended by the Surgeon General's Office in requests to The Adjutant General or the War Department Bureau of the Budget for the necessary appropriations of money and were influenced by the ex-

[2] An exception to this was the provision by AR 30–415, 1 June 1942, that the hospital at remount depots would have a capacity equal to 10 percent of the normal animal strength.

pressed intentions of The Quartermaster General and chiefs of the mounted services.

With few exceptions, the hospitals, dispensaries, clinics, wards, and other veterinary structures built during World War II followed the construction plans which, since 1937,[3] were developed or perfected by the Office of the Quartermaster General in cooperation with the Surgeon General's Office (*4*). There were at least 11 approved plans as of the fall of 1941 (table 46). As these were entered in the building projects, the Surgeon General's Office encouraged the local camp veterinary officers to inspect them[4] and, also, to requisition those items of Medical Department supply that would have to be fixed in the structure (such as Ajax dressing stocks and operating tables) (*9*). Under the provisions of Army regulations, the station veterinarian was responsible to The Surgeon General for expressing his opinion on the exact sites and arrangements of the new hospital or dispensary and for reporting on the compliances of any construction with the approved plans (*6, 7, 10*). As the building program progressed, a number of corrective suggestions[5] in the plans were made by the station veterinarians (*11* through *17*), and these, after a review jointly by the Veterinary Division, Surgeon General's Office, and the Office of the Quartermaster General, were incorporated into changes to the plans and were referred to the civilian contractors for compliance.

In the same manner that it influenced the hospital capacities, the animal strength was used also to determine the personnel space authorizations and the assignments of operational personnel to the station veterinary hospitals. During World War II, Army regulations provided for the assignment of at least four enlisted personnel in the grade of private or private first class when the camp's animal strength totaled 200 animals, and one additional such enlisted personnel for every additional 75 animals. Noncommissioned officers were allotted one for each station, and one for every four privates first class. The station complement for veterinary officers was expressed at one per station having 200 to 600 animals, another one where the station strength was between 601 and 1,100 animals, three for a station with 1,101 to 1,600 animals, and thus in graduated increases up to six veterinary officers where the station strength

[3] Actually, certain construction plans were studied by the Veterinary Division, during the early thirties. Later, during 1941, the responsibility for this construction planning was transferred from the Quartermaster Corps to the Corps of Engineers, which up to then was responsible only for construction planning in a theater of operations. The exceptional structures were remount depot ward buildings which were constructed pursuant to modified plans approved by the Chief, Remount Division, Office of the Quartermaster General. This action seemingly was based on the situation that an unexpected program for 28,860 horses and mules had been approved for immediate procurement in October 1940. However, before the construction became available, The Quartermaster General had leased several buildings for veterinary use at the depot.

[4] One particular problem was that contractors attempted to place tar paper and wood lathe strip on buildings.

[5] Changes recommended included the sloping and adding of drains to the clinic floors, the lowering of the feedboxes from 41 to 34 inches above the floor, the replacing of metal feed racks with wooden troughs so as to provide head room and to lessen interference with the ventilators, the lowering of the bails (separating bars) between stalls from 48 to 36 inches above the floor, and the lowering of the bottom boards of box stalls from 8 to 7 inches above the floor.

was between 2,801 and 3,500 animals (*18*, *19*). These regulatory provisions were actually used by the Surgeon General's Office in planning requirements or recommending assignments of veterinary personnel to certain Army camps.

ANIMAL EVACUATION PLAN

In contrast to the hospital system in the Zone of Interior, the Army Veterinary Service in the oversea theaters and during maneuver training operated an animal evacuation plan. This included, of course, the hospitalizing of sick and wounded animals in the field or during campaign but such was only a part of the evacuation plan. The other major action was the progressive movement of disabled animals rearward from the frontline tactical units. For the accomplishment of this operational responsibility in World War II, 72 veterinary units of 11 different kinds were organized (table 47). With few exceptions, these were deployed in the Central and the Southwest Pacific Areas, supported the Fifth U.S. Army in the Mediterranean theater, the Seventh U.S. Army in the European theater, Merrill's Marauders and the MARS Brigade in the Burma campaigns, or were superimposed on the Allied-sponsored Chinese military forces in the China-Burma-India theater. Altogether, these supported a U.S. animal strength in the oversea theaters that increased from a yearly mean of 3,009 in 1941 to 11,121 in 1945 (*5*) ;[6] there were untold thousands of animals in the U.S.-supervised Italian Army pack trains and in the Allied-sponsored Chinese military forces. Wherever formed, the veterinary evacuation plans successfully provided for the early and prompt discovery, treatment and segregation of disabled animals, their orderly movement to areas in back of the combat units, and their restoration to full duty status in veterinary hospitals, and conserved animal strength and efficiency.

Animal evacuation generally paralleled the Medical Department system for evacuating troop casualties. However, there was the difference that animals disabled beyond the chance for recovery into the status of serviceable duty or infected with a serious communicable disease were destroyed.

Following World War I, the units planned for animal evacuation in a theater of operations were changed to satisfy the needs in a planned field force or a theoretical field army whose composition also was changed from time to time. The units were the veterinary company of the medical regiment, the veterinary troop of the medical squadron, and the veterinary evacuation, convalescent, general, and station hospitals (*20*). The veterinary company was designed to collect disabled animals from the veterinary detachments included in the composition of the divisional units and supply trains and to operate a veterinary aid station within the infantry division. The same veterinary unit was planned also for assignment in the ratio of one per corps and four in each field army when the so-called corps troops and army troops each had a certain

[6] The annual mean strength for the oversea theaters was 2,193 animals in 1942, 6,965 animals in 1943, and 9,786 animals in 1944.

TABLE 46.—*Veterinary construction plans, 1941*

Designation	Type	Drawing number	Date	Authorization and construction features
Veterinary hospital (10-stall)[1]	VH–1	800–1300	10 May 1941	Authorized 1 per camp having a small animal strength. Included an office, latrine, rooms for attendants, supplies and heater, dispensary, treatment room with operating table and dressing stocks, and 10 stalls.
Regimental veterinary dispensary	VD–1	800–1301 [2]	do	Authorized 1 per separate mounted unit of squadron size or larger. Included an office, heater room, dispensary, and dressing floor.
Clinic, veterinary, medical	C–5	700–271	5 May 1937	Authorized to supplement the surgical clinic where the animal strength warranted its need. Included an office, latrine, rooms for supplies and heater, dispensary, and dressing floor with stocks and hitching rails.
Clinic, veterinary, surgical	C–6	700–272	do	Authorized 1 per camp. Included an office, latrine, rooms for supplies and heater, dispensary, laboratory, and room with operating table and hitching rails.
Veterinary colic building	VCB–1	800–1308 [2]	18 Sept. 1941	Authorized 1 per camp for each 3,000 animal strength. Included colic room and rooms for supplies and heater.
Veterinary ward	VW–30	800–1303, –04, –05 [2]	24 Sept. 1941	Authorized 1 per camp for each 600–1,200 animal strength. Included rooms for attendants and heater, treatment room with dressing stocks, and 24 single and 6 box stalls.

Veterinary contagious ward	VCW-20	800–1306, –1307 [2]	....do....	Authorized 1 per camp for each 300–600 animal strength as a substitute for the veterinary ward. Included rooms for attendants and heater, treatment room, and 16 single and 4 box stalls.
Veterinary autopsy slab	V. A. S.–1	800–1302 [2]	17 May 1941	Authorized 1 per camp and 1 additional for camps having more than 3,000 animals. Included a concrete platform and adjoining firepit.
Tank, dipping, animal	D. T.–1	700–341, -342, –343 [3]	May 1937	Included a dipping vat and a building for heating and mixing dip solutions.

1. Planning for veterinary hospital construction included also stable, closed, types S–1 through S–9, drawing 700-320, and stable, open, types S–10 through S–19, drawing 700-321, both dated 5 May 1937. Types S–1 and S–10 each had a stall capacity of 20; these capacities were increased in increments of 4 stalls so that the closed stable, type S–9, had a rated capacity of 52 stalls, and the open stable, S–19, had a rated capacity of 56 stalls.

2. Drawings 800–1301 through 800–1308 superseded drawing 700–486, dated 5 Nov. 1940, Veterinary Station Hospital: Veterinary Ward; Veterinary Contagious Ward; and Colic Building.

3. Superseded by drawings 700–4400 through 700–4403, Construction Division, Office of Chief of Engineers, 16 July 1942.

Source: Memorandum, Col. J. F. Crosby, VC, Veterinary Division, Surgeon General's Office, for Director, Historical Division, Surgeon General's Office, 9 Nov. 1944, subject: History of Wartime Research and Development.

TABLE 47.—*Veterinary evacuation and hospital units organized and deployed in World War II, by period and by theater* [1]

Units, grouped by functional organization	Number active on date shown							Number deployed, by theater						
	Total number	31 Dec. 1940	31 Dec. 1941	31 Dec. 1942	31 Dec. 1943	31 Dec. 1944	V–E or V–J Day	ZI (undeployed)	ETO	MTO	CPA	SWPA	CBI	CDC
Collecting and treatment:														
Separate veterinary company	[2] 12	2	2	4	10	7	5	4	[3] 1	2	0	0	5	1
Veterinary troop, medical squadron	3	1	2	1	1	0	0	1	0	1	0	1	0	0
Veterinary company, medical battalion (mountain)	2	0	0	0	2	2	1	0	0	1	0	0	1	0
Veterinary animal service detachment, Team DC	[4] 43	0	0	6	16	27	27	0	0	0	3	16	24	0
Veterinary evacuation detachment, Team CD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Veterinary evacuation detachment, Team CE	2	0	0	0	0	0	2	0	0	2	0	0	0	0
Hospital:														
Veterinary evacuation hospital	4	0	1	1	3	4	4	0	[3] 1	1	0	1	2	0
Veterinary convalescent hospital	0	0	0	0	0	0	[5]	0	0	0	0	0	0	0
Veterinary general hospital	1	0	1	1	1	0	0	1	0	0	0	0	0	0
Veterinary station hospital	2	0	0	0	2	0	0	2	0	0	0	0	0	0
Veterinary hospital detachment, Team DA	1	0	0	0	0	1	0	0	0	0	0	0	1	0
Veterinary hospital detachment, Team DB	1	0	0	0	0	0	1	0	0	0	1	0	0	0

Administration:														
Headquarters, animal service, Team AR	1	0	0	0	0	0	1	0	0	0	1	0	0	0
Total	72	3	6	13	35	41	41	8	[3] 2	7	5	18	33	1

[1] The table excludes the named hospitals in the oversea departments and the provisional organizations formed during the war in the oversea theaters; it enumerates only those constituted by War Department authorization and then activated and organized pursuant to T/O&E's.

[2] Includes the 4th Veterinary Company (Philippine Scouts).

[3] Includes units transferred from the Mediterranean theater.

[4] Includes the predecessor veterinary sections and detachments organized pursuant to pertinent portions of T/O's for field artillery pack battalions and quartermaster remount troops, but excludes those detachments included in certain veterinary composite units such as the 78th Veterinary Hospital Detachment, and the 113th Medical Service Company (Veterinary).

[5] The T/O's for the veterinary convalescent hospital were canceled on 14 May 1954.

number of animals (2,000 and 1,700 animals, respectively). The veterinary company of the medical regiment of an infantry division was substituted in the cavalry division by the veterinary troop of a medical squadron.

It was planned that the division, corps, and army aid stations were to be relieved of their more seriously sick and wounded animals by three army-assigned veterinary evacuation hospitals. The latter, unlike its World War II successor, had a twofold operational function: To collect or evacuate from the aid stations and to provide hospitalization normally for 250 animal patients. From such evacuation hospital, the recovered animals could be issued into the army's remount depot system, and those requiring rest and recuperation could be moved into the army-controlled 1,000-patient veterinary convalescent hospital. However, any animal requiring a longer convalescent period or definitive treatment was to be evacuated out of the area of the field army into the theater's communications zone to the veterinary general hospital. Ordinarily, three such general hospitals, each with a normal patient capacity of 500 animals, were planned to support a field army. Another communications zone installation, but not a part of the evacuation chain, was the 150-patient veterinary station hospital. It was designed to render the veterinary animal service for ports of debarkation and remount depots in the rear areas of a theater. Evacuation out of a theater of operations into the Zone of Interior was not contemplated.

The internal organization of these veterinary units remained constant for many years. However, resulting from the programs of increasing mechanization and motorization, the forecasted requirements of the numbers of veterinary units were lessened appreciably. Actually, these reductions were made rapidly during the 5 years preceding World War II. The veterinary units were moved out of the new streamlined tactical army and transferred into the General Headquarters Reserve. The latter's veterinary hospitals and other units were gradually reduced in parallel with the reductions taking place in the cavalry and with the motorization of other mounted units. During 1940 and 1941, the projected animal strength for mobilization planning was decreased from 45,500 to 31,221 animals—the latter including 2 cavalry divisions (15,988), 1 cavalry brigade (3,225), 9 cavalry regiments (5,166), and 12 field artillery battalions (6,852) (*21*, *22*, *23*). The War Department Munitions Program, 1940, provided for 2 separate veterinary companies and 10 evacuation, 2 convalescent, 5 general, and 4 station hospitals (*24*), but reductions were suggested for the next year.

The internal organization and the assigned operational functions of veterinary units were changed. The changes were made in recognition that a relatively few animals which were being retained in the newer field forces would be widely scattered, this requiring long-distance evacuation practices and smaller units. At about the beginning of the pre-World War II emergency periods, the functional organization of the veterinary evacuation hospital was amended so that it became only a field hospital installation of a

reduced patient capacity (of 150 animals); its evacuating functions were transferred to the veterinary company, medical regiment (*25*, *26*). A short time later, the medical regiment was completely reorganized, including the disassociation of its veterinary element—the latter becoming the separate veterinary company (*27*).

The new T/O's (tables of organization) for the separate veterinary company and veterinary evacuation hospital were subsequently changed from time to time during the war period, as were also the tables for the veterinary troop and veterinary convalescent, general, and station hospitals (*28* through *45*) (table 48). Some of the changes included the removal of Medical Department detachments from the larger hospitals, the conservation of Veterinary Corps officers in certain unit assignments by their replacement with Medical Administrative Corps officers, and the increase in the rank of hospital commanders. Equally important were the unit reorganizations: The veterinary company of five platoons became a unit of three collecting and treatment platoons and a motor evacuation section in 1943; the veterinary troop became a unit of two collecting and treatment platoons and one clearing platoon; and the station hospital was reorganized in 1942 from one of a normal patient capacity of 150 animals to one that could operate also as a 300-patient hospital. Also, the convalescent hospital was reduced in 1943 to a normal operational capacity of 500 patients; the latter's T/O, however, was canceled during May 1945 (*46*). Of course, another divisional collecting and treatment unit came into existence during the war in connection with development of the new light (pack) or mountain division—this being the veterinary company, mountain medical battalion (*47*, *48*).[7] It was comparable to the former veterinary company in the peacetime infantry division or to the existing veterinary troop in the cavalry division. In addition to the foregoing changes, there were many pertaining to the equipment of these veterinary units, including the addition of arms and armament.

With these wartime changes, other planning for newer and smaller veterinary units was undertaken. Up to that time, needless to say, the hospitals and evacuation units were studied on the concept of a single theater of operations where a relatively large number of animals might be used. The newer planning took into consideration the needs of animal evacuation chains in one or more theaters where the animal strengths would be relatively small or widely dispersed. Actually, this multitheater concept and small task force planning was little considered in veterinary mobilization planning prior to the war. In fact, the original demands for operating small-scale evacuation plans in the Southwest Pacific Area, and later in the China-Burma-India

[7] Internally, the company was organized into the headquarters, the 1st, 2d, and 3d (collecting and treatment) platoons, and the 4th (motor evacuation) platoon; it was planned to evacuate and provide first aid treatment for a divisional animal strength of approximately 6,000 horses and mules. The mountain division was developed from the original light division which was studied for specialist warfare (jungle, alpine, and amphibious) and was a specific type comparable to the infantry, cavalry, armored, or airborne divisions.

TABLE 48.—*Personnel space authorizations for veterinary evacuation and hospital units*

Units, grouped by functional organization	Last wartime T/O&E		Personnel	
	Number	Date	Officer	Enlisted
Collecting and treatment:				
Separate veterinary company	8–99	25 Nov. 1944	5	59
Veterinary troop, medical squadron	8–89	30 Sept. 1944	4	61
Veterinary company, medical battalion (mountain)	8–139	4 Nov. 1944	9	117
Veterinary animal service detachment, Team DC	8–500	18 Jan. 1945	1	4
Veterinary evacuation detachment, Team CD	8–500	do	0	3
Veterinary evacuation detachment, Team CE	8–500	do	1	10
Hospital:				
Veterinary evacuation hospital	8–780	19 May 1945	6	79
Veterinary convalescent hospital	[1] 8–790	30 Aug. 1943	6	158
Veterinary general hospital	8–750	14 May 1943	10	243
Veterinary station hospital:				
150-patient	8–760	20 July 1942	4	64
300-patient	8–760	do	6	86
Veterinary hospital detachment, Team DA	8–500	18 Jan. 1945	1	19
Veterinary hospital detachment, Team DB	8–500	do	2	35
Administration:				
Headquarters, animal service, Team AR	8–500	do	1	2

[1] Canceled on 14 May 1945.

theater and the Central Pacific Area, were met necessarily by the organization and deployment of separate veterinary detachments such as were described in the existing T/O's for field artillery units and quartermaster remount troops. Beginning in 1942 and continuing to mid-1944, 43 of these detachments were organized: 7 lettered sections (each with two officers and nine enlisted personnel) and 27 numbered detachments (each with one officer and four enlisted personnel) being organized pursuant to the T/O's for a field artillery pack battalion, and 9 lettered sections (each with one officer and seven enlisted personnel) being organized as described in the T/O's of a quartermaster remount troop. Of these, 27 were reorganized and redesignated at a later date as numbered veterinary sections animal service, or veterinary animal service detachments, Teams DC (each with space authorizations of one officer and four enlisted personnel). The latter was one of six kinds of veterinary cellular teams concerned with animals that came into existence after mid-1943.

The others included veterinary team, type 1, or veterinary hospital detachment, Team DA (with 1 officer and 23, later 19, enlisted personnel),

having a patient capacity of 30 animals, and the veterinary team, type 2, or veterinary hospital detachment, Team DB (with 2 officers and 46, later 35, enlisted personnel), having a patient capacity of 75 animals. A later edition of the original 23 July 1943 tables for these cellular team organizations added two different-sized motor evacuation sections or detachments: Team CD (with three enlisted personnel) was designed to evacuate 8 animals at a time on a single semitrailer truck, and Team CE (with an officer and 10 enlisted personnel) was designed to handle 24 disabled animals. The T/O's also provided for the assignment of certain administrative personnel to a command having three or more veterinary animal service detachments, but it was not until 18 January 1945 that the tables described these personnel in a new Team AR or headquarters, veterinary animal service (with an authorization for one officer and two enlisted personnel).

Thus, during World War II, the type units developed for animal evacuation in the theaters numbered thirteen. Of these, 11 were actually used in the organization of 72 T/O units—there being no convalescent hospital and small veterinary evacuation detachment (table 47). Of this number of units, only 6 were in active military service at the time of Pearl Harbor, and, during the war period, 49 were newly organized in the Zone of Interior, and 17 were organized in the oversea theaters. Eight units organized in the Zone of Interior were undeployed to an oversea theater, and 26 were reorganized into wholly different units, inactivated, or disbanded prior to V–E or V–J Days (table 49). The manner in which these veterinary units were deployed in the animal evacuation plans of the oversea theaters is described in the following pages.

OVERSEA DEPLOYMENT

Mediterranean Theater

An animal evacuation plan was developed to meet the urgent needs of the Fifth U.S. Army after its landing on the Italian peninsula at Salerno Gulf (9 September 1943). Though a few animals were used earlier in the American combat divisions in North Africa and during the Sicilian campaign (*49*),[8] little, if any, thought had been given previously to veterinary hospitals and evacuation units in the Mediterranean theater. Six months after the landing, a U.S. veterinary evacuation hospital arrived from the Zone of Interior and was deployed into the Fifth U.S. Army area at Teano. In the interim, that Army's animal strength grew from almost nothing to 1,078 mules and horses which were included in two field artillery battalions and

[8] In Africa, the 3d Infantry Division, I Corps, Fifth U.S. Army, had 10 burros during May 1943 and gained an additional 82 burros during the next month; of these, 3 burros were destroyed on account of severe injury, and a few were lost, stolen, or strayed. Sixty burros accompanied the division in its landing on Sicily (10 July 1943), but all died on account of heat exhaustion and overexertion before the end of July 1943. In the drive along the north coast of Sicily (3–16 Aug. 1943), 487 mules and 219 horses were procured locally (by requisition or confiscation); 43 percent of these animals were killed in action.

TABLE *49.—Historical record of veterinary evacuation and hospital units activated in World War II*

Unit	Activation		Oversea deployment			Postwar disposition	
	Date	Place	Date of departure from ZI	Date of arrival	Theater [1]	Date	Action and place
Veterinary Company (Separate):							
1st	Prewar		19 Jan. 1943	3 Mar. 1943	CBI (IBT)	12 Jan. 1946	Inactivated in IBT.
2d	25 June 1942	Fort Bliss, Tex.	8 Oct. 1944	14 Dec. 1944	do	9 Sept. 1945	Do.
3d	Prewar	[2]			Panama Canal.	10 Nov. 1943	Inactivated in Panama.
6th	10 Mar. 1943	Fort Bliss, Tex.				18 May 1943	Redesignated 36th Sep. Vet. Co.
7th [3]	17 Dec. 1942	Camp Hale, Colo.	6 Oct. 1944	14 Dec. 1944	IBT	7 Oct. 1945	Departed for ZI.
				14 Aug. 1945	CT		
				8 Sept. 1945	IBT	4 Dec. 1945	Inactivated at Camp Kilmer, N.J.
36th [4]	18 May 1943	Fort Bliss, Tex.	5 Apr. 1945	14 Apr. 1945	MTO	5 Oct. 1945	Inactivated in MTO.
37th	[2]	[2]				11 Apr. 1944	Disbanded.
38th	[2]	[2]				do	Do.
41st	[2]	[2]				30 Apr. 1944	Do.
42d	[2]	[2]				do	Do.
43d	10 Oct. 1943	Fort Clark, Tex.	22 Oct. 1944	19 Dec. 1944	IBT	2 June 1945	Inactivated in IBT.
44th	do	do	do	do	do	do	Do.
45th [5]	16 July 1944	MTO			MTO	4 Feb. 1946	Inactivated in ETO.
				20 Nov. 1944	ETO		

Veterinary Troop, Medical Squadron:							
1st	Prewar		May-June 1943.	12 July 1943	SWPA	4 Dec. 1943	Redesignated 2d Collection Troop, 1st Medical Squadron.
2d	1 Nov. 1941	Fort Riley, Kans.				Mid-1942	Disbanded.
3d	February 1943.	Fort Clark, Tex.	February 1944.	March 1944	MTO	1944	(2).
Veterinary Company, Mountain Medical Battalion:							
10th	15 July 1943	Camp Hale, Colo.	(2)	6–20 Jan. 1945.	MTO	(2)	(2).
13th	(2)	do	(2)	December 1943	CBI (IBT)	26 June 1945	Inactivated in IBT.
Veterinary Animal Service Detachment:[6]							
D	5 Dec. 1942	Fort Bliss, Tex.	12 Feb. 1943	2 Mar. 1943	SWPA	1 Oct. 1944	Disbanded in SWPA.
E	do	do	do	do	do	do	Do.
F	do	do	do	do	do	do	Do.
G	do	do	do	do	do	do	Do.
H	do	do	do	do	do	do	Do.
I	do	do	do	do	do	do	Do.
K	18 Jan. 1943	do	23 Aug. 1943	7 Sept. 1943	do	do	Do.
L	do	do	27 Aug. 1943	16 Sept. 1943	do	do	Do.
M	do	do	do	do	do	do	Do.
N	do	do	28 Aug. 1943	29 Sept. 1943	do	do	Do.
O	do	do	do	do	do	do	Do.
P	do	do	do	do	do	do	Do.
Q	do	do	do	do	do	do	Do.
R	do	do	do	do	do	do	Do.

See footnotes at end of table.

TABLE 49.—*Historical record of veterinary evacuation and hospital units activated in World War II*—Continued

Unit	Activation		Oversea deployment			Postwar disposition	
	Date	Place	Date of departure from ZI	Date of arrival	Theater [1]	Date	Action and place
S	5 Dec. 1942	Fort Bliss, Tex	12 Feb. 1943	2 Mar. 1943	SWPA	1 Oct. 1944	Disbanded in SWPA.
Z	do	do	do	do	do	do	Do.
39th	6 July 1944	CBI			CBI (IBT)	18 Sept. 1945	Departed for ZI.
				[2]		24 Oct. 1945	Inactivated at Camp Kilmer, N.J.
40th	do	do			do	18 Sept. 1945	Departed for ZI.
				[2]		24 Oct. 1945	Inactivated at Camp Kilmer, N.J.
41st	do	do			do	18 Sept. 1945	Departed for ZI.
				[2]		24 Oct. 1945	Inactivated at Camp Kilmer, N.J.
42d	do	do			CBI	20 Sept. 1945	Inactivated in CT.
				[2]	CT		
43d	do	do			CBI	do	Do.
				[2]	CT		
44th	do	do			CBI	do	Do.
				[2]	CT		
45th	do	do			CBI	do	Do.
				18 July 1944	CT		
46th	do	do			CBI	do	Do.
				8–23 July 1944.	CT		
47th	do	do			CBI	do	Do.
				July 1944	CT		
48th	do	do			CBI	do	Do.
				24 July 1944	CT		
49th	do	do			CBI	do	Do.
				[2]	CT		

50th	do	do			CBI	do	Do.
				22 July 1944	CT		
51st	12 Apr. 1944	Camp Hale, Colo.	16 July 1944	26 Sept. 1944	CBI (IBT)	28 Oct. 1945	Inactivated in IBT.
52d	do	do	22 July 1944	23 Sept. 1944	do	19 Oct. 1945	Do.
53d	do	do	22 July 1944	do	CBI	20 Sept. 1945	Inactivated in CT.
				3–8 Nov. 1944.	CT		
54th	do	do	29 June 1944	1 Sept. 1944	CBI	do	Do.
				6 Nov. 1944	CT		
55th	do	do	28 July 1944	4 Oct. 1944	CBI	do	Do
				15 Dec. 1944	CT		
56th	do	do	do	4 Oct. 1944	CBI	do	Do.
				2 Nov. 1944	CT		
57th	do	do	4 Aug. 1944	30 Sept. 1944	CBI	do	Do.
				7 Nov. 1944	CT		
58th	do	do	do	30 Sept. 1944	CBI	do	Inactivated in CT.
				2 Nov. 1944	CT		
59th	do	do	4 June 1944	2 Oct. 1944	CBI	do	Do.
				1 Dec. 1944	CT		
60th	do	do	4 Aug. 1944	2 Oct. 1944	CBI	do	Do.
				(2)	CT		
61st	do	do	5 Aug. 1944	11 Oct. 1944	CBI	do	Do.
				1 Dec. 1944	CT		
62d	do	do	16 Aug. 1944	19 Oct. 1944	CBI	do	Do.
				22–29 Nov. 1944.	CT		
63d	30 June 1944	Camp Carson, Colo.	13 Nov. 1944	3 Dec. 1944	CPA	14 May 1946	Inactivated in CPA
64th	do	do	do	do	do	do	Do.
65th	do	do	do	do	do	do	Do.

See footnotes at end of table.

TABLE 49.—*Historical record of veterinary evacuation and hospital units activated in World War II*—Continued

Unit	Activation		Oversea deployment			Postwar disposition	
	Date	Place	Date of departure from ZI	Date of arrival	Theater [1]	Date	Action and place
Veterinary Evacuation Detachment (Team CE):							
643d	12 Mar. 1945	MTO			MTO	September 1945.	Inactivated in MTO.
644th	do	do			do	15 Oct. 1945	Do.
Veterinary Evacuation Hospital:							
16th	1 June 1941	Fort Bliss, Tex.	27 Dec. 1942	30 Jan. 1943	SWPA	2 Nov. 1945	Inactivated in SWPA.
17th	15 Jan. 1943	do	22 Feb. 1944	12 Mar. 1944 20 Nov. 1944	MTO ETO	4 Feb. 1946	Inactivated in ETO.
18th	do	do	31 May 1944	3 Aug. 1944	CBI	3 Oct. 1945 24 Oct. 1945	Departed for ZI. Inactivated at Camp Kilmer, N.J.
19th [7]	11 Aug. 1944	Fort Ord, Calif.	22 Oct. 1944	23 Nov. 1944 27 Feb. 1945	IBT CT	10 Oct. 1945 7 Nov. 1945	Departed for ZI. Inactivated at Camp Kilmer, N.J.
Veterinary General Hospital:							
30th	1 June 1941	Fort Bliss, Tex.				11 Aug. 1945	Redesignated 19th Veterinary Evacuation Hospital.

Veterinary Station Hospital:							
23d	25 Jan. 1943	do				23 Oct. 1945	Disbanded at Fort Riley, Kans.
24th	15 July 1943	do				do	Disbanded at Fort Reno, Okla.
Veterinary Hospital Detachment (Team DA):							
78th [8]	7 Sept. 1944	CBI			CBI (IBT)	25 July 1945	Inactivated in IBT.
Veterinary Hospital Detachment (Team DB):							
306th	15 Feb. 1945	Fort Lewis, Wash.	[2]	10 June 1945	CPA	10 Nov. 1945	Inactivated in CPA.
Headquarters, Animal Service (Team AR):							
38th	6 Aug. 1945	CPA			CPA	6 Dec. 1945	Do.

[1] The theater designation is the major area of deployment.

[2] Not known.

[3] The 7th Veterinary Company (Separate) was activated in two increments, its 1st and 2d platoons on 24 Dec. 1942, and its Headquarters Section and 3d, 4th, and 5th platoons on 15 Jan. 1943.

[4] Redesignation of 6th Veterinary Company (Separate).

[5] The 45th Veterinary Company (Separate) followed the 6482d Veterinary Company (Separate) (Provisional) which was organized in the Oran area, Algeria, on 24 May 1944.

[6] Veterinary Sections D, E, F, G, R, S, and Z were organized in the Zone of Interior pursuant to T/O 6–155, 1 Apr. 1942. The 39th through 50th Veterinary Detachments were organized in the China-Burma-India theater, and the 51st through 65th Veterinary Detachments were organized in the Zone of Interior pursuant to T/O 6–155, 4 May 1943. Veterinary Sections H, I, K, L, M, N, O, P, and Q were organized in the Zone of Interior pursuant to T/O 10–97. All lettered units, some never being used in animal service, were disbanded later, and their personnel were assigned to food inspection detachments, whereas all numbered units were reorganized later as animal service detachments, Team DC, with the same numerical designations.

[7] Redesignation of 30th Veterinary General Hospital.

[8] The 78th Veterinary Hospital Detachment was activated originally as Team DA; in April 1945, it was reorganized as a composite unit including a Team DA and a Team DC.

the pack trains which were improvised by the 3d, 34th, 36th, and 45th Infantry Divisions, and another 1,835 animals with Italian Army pack mule trains which were operating in the divisional areas. The Italian trains were manned and equipped originally by the Italian Government and then were deployed under the control and supervision of the U.S. forces in the theater. At this time also, the Fifth U.S. Army included the French Expeditionary Corps, with approximately 4,300 animals—this number increasing to more than 9,000 mules and horses before July 1944 when the control over that Allied force was transferred to the Seventh U.S. Army for entry into the southern France campaign. In the course of time, the pack trains of the U.S. combat divisions were discontinued and replaced by the Italian pack mule trains (or companies); the latter's animal strength, beginning after December 1943, was gradually increased to a peak of 4,391 mules and 158 horses (as of March 1945). Altogether, the Fifth U.S. Army's mean animal strength in the period from December 1943 through June 1945 averaged 5,150 mules and horses (table 50) (*50*, *51*). Its disabilities approximated 3,000, including 795 battle casualties, of which number 5.9 percent died or were destroyed on account of disease and injury; another 1,300 animals were killed in action. For the collection and treatment of these 3,000 or more disabled animals, an evacuation plan was developed and operated that included as many as 2 separate veterinary companies, a veterinary company of a mountain division, 2 evacuation detachments, and at least 9 hospital organizations and units, in addition to a complete remount operation. A portion of this plan involved, of course, the Mediterranean theater's Peninsular Base Section and U.S.-supervised Italian veterinary hospital organizations.

During the first few months on the Italian peninsula, the U.S. combat divisions hurriedly and unexpectedly had begun to assemble animals—almost any kind of mule or horse—that could be used in the conduct of reconnaissance or to transport ammunition, medical supplies, and rations to the outpost positions in the southern Apennine mountains (*52*). By December 1943, such animals numbered more than a thousand and were organized by the divisions into so-called provisional pack trains.[9] These were operated, equipped, and controlled by the division veterinarians because other personnel were unavailable. The animal losses in these divisional trains were evidently great. For example, the Provisional Reconnaissance Troop, Mounted, of the 3d Infantry Division, with 620 mules and horses, during October 1943 lost 108 animals, 88 being killed by gunfire and 20 being destroyed on account of severe gunshot wounds (*49*). In the 34th Infantry Division, only 30 animals remained from a group of 75 after little less than 2 months of operations. These losses could be expected under the conditions under which the

[9] During January 1944, the provisional pack trains included 906 mules and 257 horses. These were divided between the U.S. combat divisions as follows: 463 in the 3d Infantry Division, 204 in the 34th Infantry Division, 169 in the 36th Infantry Division, and 327 in the 45th Infantry Division. The trains were discontinued at about the time the divisions prepared for movement from the Naples-Foggia battlefront to the diversionary attack at Anzio; however, at least one divisional pack train—that of the 36th Infantry Division—was moved by LST to Anzio (20 May 1944). The 1st Armored Division also had a pack train.

TABLE 50.—*Sick and wounded animals of the Fifth U.S. Army, Mediterranean theater, December 1943 through June 1945*

Year and month	Mean animal strength [1]	Admissions				Died or destroyed	Killed in action	Treatment days
		Total	Disease	Injury	Battle casualty			
1943								
December	1,083	80	23	44	13	12	0	442
	(1,083)	(80)	(23)	(44)	(13)	(12)	(0)	(442)
1944								
January	4,229	101	40	51	10	5	15	547
	(894)	(101)	(40)	(51)	(10)	(5)	(15)	(547)
February	5,111	151	36	82	33	16	50	1,483
	(872)	(86)	(17)	(45)	(24)	(13)	(50)	(681)
March	6,295	263	81	96	86	9	1	2,238
	(1,078)	(118)	(56)	(59)	(3)	(6)	(1)	(304)
April	11,229	145	52	83	10	17	0	1,684
	(822)	(93)	(43)	(50)	(0)	(10)	(0)	(1,081)
May	12,659	259	28	177	54	19	24	5,209
	(1,189)	(120)	(8)	(104)	(8)	(8)	(24)	(1,843)
June	11,906	114	39	62	13	8	5	2,231
	(1,075)	(106)	(36)	(57)	(13)	(5)	(0)	(1,215)
July	2,126	274	57	193	24	14	5	6,732
	(827)	(50)	(16)	(34)	(0)	(5)	(5)	(349)
August	2,729	3	2	0	1	0	200	500
September	2,837	150	14	74	62	3	197	533
October	2,739	305	26	136	143	13	252	4,920
November	2,965	164	27	90	47	10	286	4,781
December	2,980	143	34	76	33	9	175	2,765
1945								
January	3,507	166	77	62	27	8	122	1,598
February	4,389	120	17	61	42	6	104	1,188
March	4,549	253	74	120	59	16	29	5,568
April	4,447	202	48	117	37	6	86	6,660
May	4,013	83	25	58	0	3	0	1,516
June	4,011	66	32	34	0	5	0	1,843

[1] The parenthetical data relate only to U.S. Army animals for the period that such were in the army, with the exception of the period after April 1945 when the 10th Mountain Division was provided with approximately 850 animals. The data for the period from December 1943 through June 1944 relate to United States, French, and U.S.-supervised Italian Army animals. Beginning with July 1944, the data pertain to U.S.-supervised Italian Army pack companies.

Sources: (1) Veterinary Reports of Sick and Wounded Animals, U.S. Units, Fifth U.S. Army, December 1943 through June 1944. (2) Veterinary Reports of Sick and Wounded Animals, Consolidated Allied Units, Fifth U.S. Army, February 1944 through June 1945.

trains were assembled and used. The animals, removed from the Italian countryside, were unconditioned and not suitable for military campaign; the divisional personnel were inexperienced in animal care and management; the local resources of feed, horseshoes, and veterinary supplies had been removed or destroyed by the retreating Germans; the pack trains were the select

targets of artillery fire and mortar barrage; and the animals which became disabled could not be removed from the divisional areas.

Foreseeing that the combat divisions were not to be denied their animal transport, the Veterinarian, Fifth U.S. Army, supported and developed plans for an orderly supply of animals and the care of those becoming disabled (*52*). Breeding stations, remount depots, racetracks, and stables, as they were uncovered in the northward advances of the Allied forces, were set up as hospital and remount depot sites; these depots later were operated by a provisional remount organization identified as an activity of the Peninsular Base Section. Originally, remount depots were established at Persano (September 1943), Santa Maria (November 1943), and Bagnoli (December 1943), each with a veterinary section which operated depot dispensaries. Contrary to the accepted principles of animal evacuation, for more than a year these dispensaries received disabled animals directly from the combat divisions and veterinary evacuation hospitals of the Fifth U.S. Army. In the beginning, a Fifth U.S. Army provisional veterinary hospital, organized on 8 December 1943, and manned by Italian Army veterinary personnel, and a French Army veterinary ambulance company (the 541st) opened station in the vicinity of these remount depots, but both units were soon lost to the French Expeditionary Corps.

The most singular gain in the early growth of the Mediterranean theater's animal service plan came during December 1943 when the first of several Italian pack mule trains and two veterinary evacuation hospitals were received on the Italian peninsula from Sardinia. The former had approximately 1,600 mules and horses which were transshipped and used in the Italian campaigns. They were deployed to augment, and later to replace, the provisional trains of the U.S. combat divisions.[10] The two Italian veterinary evacuation hospitals—the 110th and the 130th—established stations at Treponti and Nocelleto in back of the divisional trains and Italian pack trains of the II Corps, Fifth U.S. Army.[11] A third hospital unit—the U.S. 17th Veterinary Evacuation Hospital—newly arrived from the Zone of Interior,[12] established station on 5 April 1944, at Teano (*52*). These hospitals forwarded replacement animals in exchange for the disabled animals received from the pack trains and evacuated those animals requiring further treatment out of the army area to the remount depot dispensaries.

[10] At this time, the Italian pack mule trains each included 4 line officers, a veterinary officer, 400 enlisted men, and 325 animals. A year and a half later, they were U.S.-equipped and were provided with 269 animals.

[11] These Italian hospital units each included 4 veterinary officers, 1 administrative officer, and 100 enlisted men. When equipped by the Military Ministry of the Italian Army, the units were designated, for example, as the ITI–ITI 110th Veterinary Evacuation Hospital; during February 1945 such units were equipped by the United States, and the unit was redesignated as the US–ITI Veterinary Evacuation Hospital.

[12] The 17th Veterinary Evacuation Hospital arrived on 12 March 1944, at Oran, Algeria, and then transshipped on 16–28 March to Naples, Italy. En route to Naples, one enlisted man was killed during an enemy aerial attack on the ship.

With the beginning of the spring 1944 operations, the evacuation hospitals were supporting four Italian pack trains, the 36th and 45th Infantry Divisions' trains, and the 601st and 602d Field Artillery Battalions—their aggregate animal strengths approximating 3,000 mules and horses. The 601st and 602d Field Artillery Battalions, having arrived from the Zone of Interior during March 1944, were deployed in the Fifth U.S. Army until mid-July 1944 when they were transferred to the Seventh U.S. Army; each included an organic veterinary detachment.

In the offensive that started on 11 May 1944, and culminated with the capture of Rome (4 June), the three evacuation hospitals continued their support of the Italian pack trains, which now numbered seven (with 1,964 mules and horses), and the 601st and 602d Field Artillery Battalions and the 36th Infantry Division's provisional train (with 1,189 animals). A fourth hospital organization—the Italian 210th Veterinary Hospital—joined the Fifth U.S. Army on 3 May 1944, but was disbanded during the next month. In this offensive, taking place in the mountains about the Garigliano River, the hospitals remained fixed in their original positions because no suitable sites could be found in the advanced areas.

The Fifth U.S. Army made little use of animals during the latter part of the Rome-Arno Campaign or in the "battle of pursuit" across the plains area to the Gothic Line in the northern Apennines. During this time, however, the 17th Veterinary Evacuation Hospital moved six times in the wake of the 601st and 602d Field Artillery Battalions, reaching Pontiginione in mid-July 1944 and then closing station on 12 August 1944. The unit received 251 animal patients; 194 were evacuated for further hospital treatment, 51 were returned to duty, and 6 died or were destroyed. Also, the Italian 110th and 130th Veterinary Evacuation Hospitals were moved out of Treponti on 20 June and Nocelleto on 1 July, respectively, and then through Rome and northward to take stations at Vaglia on 14 September and at Cafaggiolo on 22 September, respectively.

The 1944 summer lull in animal utilization saw the reorganization of the Italian pack mule companies under an Italian 20th Pack Mule Group and the attachment of U.S. veterinary officers as supervisory personnel. Other changes were made in the Fifth U.S. Army incident to the preparations for Operation ANVIL (the Allied invasion of southern France). These included the transfer of the two field artillery battalions (with 800 animals) and the French Expeditionary Corps (with 8,000 animals) to the Seventh U.S. Army, as well as the 17th Veterinary Evacuation Hospital and the new 45th Veterinary Company (Separate) (*52*). The last-named unit was the continuation of the 6482d Separate Veterinary Company (Provisional), which had been formed on 24 May 1944, at Oran, transshipped on 18–23 June to Naples, and then redesignated the 45th Separate Veterinary Company effective 16 July 1944.

At the beginning of the new campaign to penetrate the Gothic Line (10 September 1944), the Fifth U.S. Army's evacuation plan included two Italian evacuation hospitals: The 110th at Vaglia and after 17–18 October at Pitramala and the 130th at Cafaggiolo. The latter was joined on 2 October by the Italian 212th Veterinary Evacuation Hospital, which was then moved on 6–8 January 1945, to Lucca.[13] A fourth, the Italian 211th Veterinary Evacuation Hospital, established station at Pontepetri on 24 February 1945.[14] In this period, the number of Italian pack trains under the operational control of American divisions and corps increased from 8 (with 2,706 mules and 131 horses as of 30 September 1944) to 11. Up to 31 December, these companies had lost more than 700 disabled animals to the evacuation hospitals for additional treatment, and another 461 animals were killed in action. During February 1945, the 11 pack companies were assigned to the divisional units of the two army corps in the Fifth U.S. Army, each corps being supported by two evacuation hospitals, as shown below:

II Corps
Italian 110th and 130th Veterinary Evacuation Hospitals

34th Infantry Division	13th Italian Pack Mule Company
1st Armored Division	11th and 15th Companies
91st Infantry Division	1st, 9th, and 16th Companies

IV Corps
Italian 211th and 212th Veterinary Evacuation Hospitals

10th Mountain Division	5th and 17th Companies
92d Infantry Division	12th Company
6th South African Armored Division	10th Company
Brazilian Expeditionary Force	18th Company

The corps assignment of divisions and the divisional assignments of the Italian pack trains were changed frequently. In the next month (March 1945), the pack trains numbered 14, and their animal strength reached a peak of 4,549 mules and horses.

During April 1945, the number of Italian pack mule companies with the Fifth U.S. Army was increased to 15, and the four Italian veterinary evacuation hospitals were moved northward—the 110th moving to Polvrifitto on 26–28 April; the 130th moving to Verona on 28–30 April, the 211th moving on 1–3 April to Riolo and then to Ghisione on 26 April, and the 212th moving on 20–22 April to Pal. Beceadelli. These trains and hospitals were assigned as follows:

II Corps
Italian 110th and 130th Veterinary Evacuation Hospitals

1st Armored Division	10th Italian Mule Pack Company
34th Infantry Division	15th Company
88th Infantry Division	1st, 2d, 13th, 16th, and 21st Companies
91st Infantry Division	11th and 19th Companies

[13] The Italian 212th Veterinary Evacuation Hospital arrived at Cafaggiolo (from the Florence staging area) for training purposes and was not equipped for field operations at this time.

[14] The Italian 211th Veterinary Evacuation Hospital arrived in the Florence staging area on 5 January 1945, and then moved out to Pontepetri.

IV Corps
Italian 211th and 212th Veterinary Evacuation Hospitals

10th Mountain Division	5th and 17th Companies
85th Infantry Division	9th Company
92d Infantry Division	12th Company
Brazilian Expeditionary Force	18th and 20th Companies

At about this time, which marked the beginning of Operation GRAPESHOT (the capture of Bologna and the subsequent breakout into the Po River Valley), the evacuation plan of the Fifth U.S. Army was augmented with the 36th Separate Veterinary Company and the beginning operations of the veterinary animal service organic to the 10th Mountain Division. This company, arriving in Italy on 14 April 1945, during the next 3 months received 118 animal patients from the Italian veterinary evacuation hospitals and other units, and provided 1,377 hospital treatment days (*53*). The 10th Mountain Division, arriving in Italy during January 1945, was provided with a few Italian pack companies, and, in addition, during April, its 86th Mountain Infantry Regiment, 10th Cavalry Reconnaissance Troop, and 605th Field Artillery Battalion were provided with 841 pack mules and cavalry horses (*52*, *54*).[15] The latter animals, when becoming disabled, were collected by the division's Veterinary Company, 10th Mountain Medical Battalion. Until the end of that month, the disabilities within the division numbered 67 animals (including 14 battle casualties); of these, 45 animal patients were evacuated out of the combat area to the 2605th Veterinary General Hospital.

In back of the Fifth U.S. Army, the foregoing evacuation plan was supported by a veterinary hospital system controlled by the Peninsular Base Section, a services of supply organization. Approximately 1,500 disabled animals were evacuated from the combat divisions and Allied units. This hospital system originally included remount depot dispensaries (*52*) [16] and the Fifth U.S. Army Provisional Veterinary Hospital which was renamed the Italian 210th Veterinary Hospital and then transferred to the French Expeditionary Corps. The latter's hospital operations at Grosseto, after mid-1944, were resumed by the new Italian 213th Veterinary General Hospital, renamed the Italian Veterinary General Hospital and later, on 31 March 1945, the Italian 1st Veterinary General Hospital. This organization, operating under the technical supervision of U.S. Army veterinary officers, received more than a thousand animal patients (*55*, *56*, *57*) during the period

[15] In mid-May, following the surrender of the Germans in Italy, the division transferred its mules to the 3298th Quartermaster Service Company and on 15 July transferred its horses to a quartermaster remount unit. Until the last date, the 10th Mountain Division's veterinary service in the Mediterranean theater had reported on a total of 116 cases of diseases and injuries and had provided 433 treatment days.

[16] The remount depots were located originally at Persano, Santa Maria, and Bagnoli. These were closed in mid-1944, and newer ones were established at Grosseto and Pisa. After the capitulation of the German armies, thousands of captured animals were assembled at San Martino and Mirandola.

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TABLE 51.—*Sick and wounded animals admitted into the U.S.-supervised Italian 213th Veterinary General Hospital, Italian Veterinary General Hospital, and Italian 1st Veterinary General Hospital, Peninsular Base Section, Mediterranean theater, July 1944 through 20 July 1945*

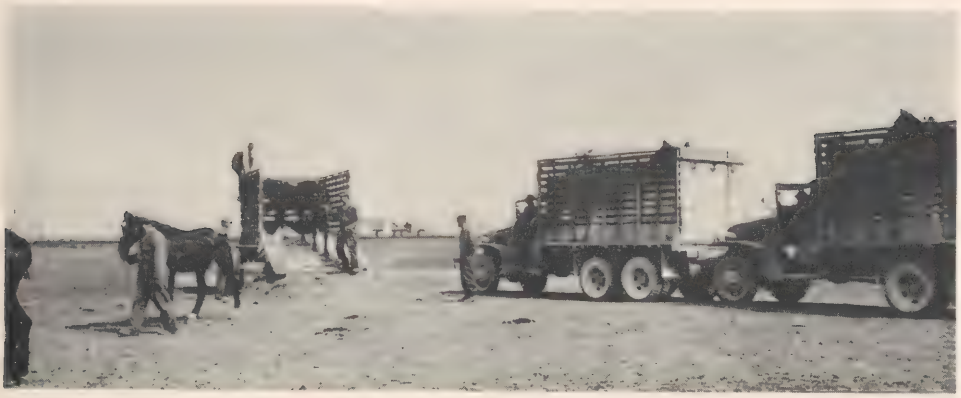
Year and month	Admissions				Died or destroyed	Treatment days (in hospital)	Hospital stall capacity
	Total	Disease	Injury	Battle casualty			
1944							
July	124	59	49	16	1	247	100
August	41	13	19	9	5	4, 255	100
September	21	8	6	7	8	4, 723	100
October	84	32	28	24	8	5, 152	100
November	8	7	1	0	8	2, 972	139
December	252	108	91	53	4	5, 832	186
1945							
January	115	88	18	9	12	8, 126	176
February	94	55	32	7	1	5, 536	192
March	78	30	27	21	3	7, 213	192
April	89	48	41	0	3	6, 157	192
May	30	18	12	0	3	5, 387	192
June	69	26	39	4	4	3, 772	152
July	18	6	12	0	8	2, 112	152
Total	1, 023	498	375	150	68	61, 484	----

Sources: (1) Veterinary Reports of Sick and Wounded Animals, Italian 213th Veterinary General Hospital, July through September 1944. (2) Veterinary Reports of Sick and Wounded Animals, Italian Veterinary General Hospital, October 1944 through March 1945. (3) Veterinary Reports of Sick and Wounded Animals, Italian 1st Veterinary General Hospital, April through 20 July 1945.

of 1 year or until its inactivation on 20 July 1945 (table 51). Of this number of patients, 599 were received direct from the Fifth U.S. Army's veterinary evacuation hospitals. In the spring of 1945 also, the evacuation plan of the Peninsular Base Section was augmented by four veterinary hospitals and two evacuation detachments. The latter, including the 643d and the 644th Veterinary Evacuation Detachments, were activated and organized on 12 March 1945, at Leghorn, Italy, and were used in the moving of hospitals to new locations and of animal patients out of the army area or to other hospitals (fig. 61). The new hospitals were the 2604th Veterinary Station Hospital (Overhead) [17] organized on 15 March 1945, at Leghorn (*58*) (fig. 62); the 2605th Veterinary General Hospital (Overhead),[18] organized on 15 March 1945, at Naples (*59*); the Italian 1st Veterinary Station Hospital, formed on 1 April 1945, at Bagnoli; and the Italian 2d Veterinary General Hospital. Each of the Italian units were attached to the respective American station and general hospital organizations for operational control.

[17] The hospital was organized as a modification of a standard T/O unit but had only 4 officers and 19 enlisted personnel. It was disbanded on 20 July 1945, at Leghorn, Italy.

[18] The hospital was organized as a modification of a standard T/O unit, with 6 officers and 31 enlisted personnel. It was disbanded on 30 July 1945, at Leghorn, Italy.



SC MM–45–21533

FIGURE 61.—Capt. L. T. Lacey, VC, commanding the 643d Veterinary Evacuation Detachment, supervising the unloading of wounded animals for admission to the U.S.-equipped Italian 2605th Veterinary General Hospital, Mirandola, Italy, on 9 May 1945.



SC MM–45–21518

FIGURE 62.—U.S. Army Veterinary Corps officers with the 2604th Veterinary Station Hospital (Overhead) examining and giving treatment to captured sick and wounded animals at the Fifth U.S. Army Remount Station, San Martino, Italy, 10 May 1945.

The 2604th and Italian 1st Veterinary Station Hospitals, joining on 11 April 1945, were scheduled to take station at Cafaggiolo to replace the Fifth U.S. Army's Italian 130th Veterinary Evacuation Hospital, but the change in the battlefront and lack of hospital sites prevented the movement; instead, on 5 May 1945, the two units moved to San Martino. The 2605th and the Italian 2d Veterinary General Hospitals, however, were moved during April 1945 and set up station in the vicinity of Pontepetri; on 1–2 May 1945, they closed station and were moved to Mirandola. During the period from 19 April to 1 May, the 2605th Veterinary General Hospital admitted 99 animal patients—41 from the Italian 211th Veterinary Evacuation Hospital and the remainder from the veterinary company of the 10th Mountain Division. In May 1945, with the surrender of the German armies in Italy, these four hospital units were engaged in supporting remount operations. During the next month, the Fifth U.S. Army's Italian pack mule companies and veterinary evacuation hospitals were returned to the Military Ministry of the Italian Army, effective on 30 June 1945.

European Theater

The veterinary evacuation plan, which included the deployment of the 17th Veterinary Evacuation Hospital and the 45th Separate Veterinary Company in the European theater, originated with the preparations taken during mid-1944 in the Mediterranean theater for Operation ANVIL (the invasion of southern France). Both units were reassigned in mid-August 1944 from the Fifth U.S. Army in Italy to the Seventh U.S. Army and subsequently transshipped to southern France. The hospital established station at Grenoble, France, on 26 September 1944, and the company, moving in two shipments through Vars, proceeded to Saint-Raphaël by 6 September and then moved to Lons-le-Saunier on 14 September and to Sisterone on 17 September. The two Seventh U.S. Army units were attached to the First French Army for operational control, effective on 21 September 1944, and, on 20 November 1944, all former Mediterranean theater units were transferred to the control of the European theater.

Other units with animals that came into the European theater through southern France included a provisional quartermaster remount organization and the 601st and 602d Field Artillery Battalions, each with its own veterinary detachment. The battalions, arriving in France during September and October 1944 with approximately 800 mules and horses (*60*, *61*), served under the 44th Antiaircraft Brigade, 6th Army Group, in southeastern France until mid-March 1945 when they were dismounted.[19] During the time that

[19] The 601st Field Artillery Battalion moved on 31 August 1944, from Nemi, Italy, to Lake Avernus; it departed on 13 October 1944, from Pozzuoli, Italy, arriving in Nice, France, on 15 October 1944. While in France, battalion elements were stationed at LeSuquet, Peira-Cava, Drap, and Blausaso. On 16 March 1945, its animals were transferred to the French 1st Division.

Detachment A of the 602d Field Artillery Battalion moved from Nemi, Italy, to Lake Avernus, arriving on 1 September 1944; it departed on 18 September 1944, from Naples, arriving at Marseilles, France, on 24 September 1944. While in France, it moved to Saint-Raphaël, then to Nice, and set up station at Val de Gorbio (Menton area). On 17 March 1945, its animals were transferred to the Quartermaster, Delta Base Section.

the two battalions with animals were a part of the Seventh U.S. Army (August 1944 through mid-March 1945), their disabled animals totaled 197, including 4 battle casualties, and another 14 animals were killed in action, as shown in the following tabulation:

	Number
601st Field Artillery Battalion:	
Average mean strength	385
Admissions:	
For disease	20
For injury	[1] 124
Total	144
Treatment ---days	1,250
Average days per admission	9
Died or destroyed	6
Killed in action	5
Number admitted per 1,000 average animal strength per year:	
For disease	83.1
For injury	514.3
Total	597.4
Number per 1,000 average animal strength per year died or destroyed	23.4
602d Field Artillery Battalion:	
Average mean strength	362
Admissions:	
For disease	21
For injury	32
Total	53
Treatment ---days	597
Average days per admission	11
Died or destroyed	14
Killed in action	9
Number admitted per 1,000 average animal strength per year:	
For disease	77.3
For injury	118.8
Total	196.1
Number per 1,000 average animal strength per year died or destroyed	32.5

[1] Includes 4 battle casualties.

The more seriously sick and injured animals in these two battalions were evacuated to a platoon of the 45th Veterinary Company (Separate) that was located at Nice.

As a unit under the operational control of the First French Army, the 45th Veterinary Company (Separate) established its headquarters at Gap, France, on 29 September 1944, remaining there until after V–E Day (*62*). Its three platoons were deployed as follows: The 1st to Châteauroux (40 kilometers east of Gap) in support of the French Army; the 2d in support of the 513th Quartermaster Pack Company (Separate), moving to Villè, France, to Dossenheim, Germany (early January 1945), to Hangerville, France (in mid-January 1945), and also to Liestadt, Germany; and the 3d Platoon, after 4 December 1944, at Nice, where it supported the two field artillery battalions until their dismounting, and then the French 1st DIM Division. The 1st and 2d Platoons returned

to the parent headquarters at Gap, on 27 April and 1 May 1945, and were relieved from French Army control on 19 May 1945; the 3d Platoon was reassigned to Seventh U.S. Army control a few days later and rejoined the company at Gap on 31 May 1945. Until this late date, the 45th Veterinary Company (Separate) received 285 animal patients [20] for treatment, of which number 31 died or were destroyed and 57 were evacuated to the 17th Veterinary Evacuation Hospital or to the 6835th Quartermaster Remount Depot for additional treatment; the other 197 patients were returned to duty (*52*). Stable treatment days totaled 4,688.

The 17th Veterinary Evacuation Hospital operated under the operational control of the French Army at Grenoble, France, for the period from 26 September 1944 to 30 April 1945, when it was moved into Germany as a Third U.S. Army unit. During its stay in France, the hospital received 400 animal patients, including 28 battle casualties, from French Army organizations and from evacuees from the 45th Veterinary Company (Separate); [21] hospital treatment days totaled 23,442 (*63*). After release from the French Army control, the 45th Veterinary Company (Separate) and the 17th Veterinary Evacuation Hospital departed for Germany on 30 April and 4 June 1945, respectively.[22]

China-Burma-India Theater

The animal evacuation plans in the China-Burma-India theater began inauspiciously during August 1942 when a hospital operation was established at the Rāmgarh, India, training center. It had for its objective the care and treatment of animals being issued to the Chinese 22d and 38th Divisions which, having been driven out of Burma by the Japanese enemy, were being Allied equipped and U.S. trained for new deployment. The sponsoring of these Chinese units—sometimes referred to as the X-Force or the Chinese Army in India—was a diversion from the original Allied strategy which included assistance to the Chinese military forces in China. However, until Burma was cleared of the Japanese and the overland route into China was reopened, material assistance, except by aerial transport, was not generally possible. Thus, in time, U.S. combat teams (that is, Merrill's Marauders and, later, the MARS Brigade) and the U.S.-trained Chinese military units entered in campaigns against the Japanese in Burma. A plan of animal evacuation was operated for each. A third plan came into existence in the theater's services of supply organization to support the remount service that

[20] The sources of these 285 animal patients were as follows: 37 from the French First Army, 9 from the French 27th Alpine Division, 104 from the French 1st DIM, 96 from the U.S. 513th Quartermaster Pack Company, 35 from the U.S. 601st and 602d Field Artillery Battalions, and 4 from other sources.

[21] Of the 400 animal patients, 350 originated from French Army sources.

[22] The hospital unit moved to Geislingen (7 June 1945), Heidenheim (7 June to 8 August 1945), Rohrbach (8 August to 22 September 1945), and then to Kirchheim. During this time, no animal patients were treated. The company unit proceeded to Augsburg (arriving on 1 May 1945) and then to Rosengarten and to Heidelberg.

was started during November 1943 when the first of 30 incoming shipments of approximately 10,000 U.S. Army mules and horses was disembarked at Calcutta, India. These evacuation plans were actually begun during May 1943 with the arrival of the 1st Veterinary Company (Separate) from the Zone of Interior; 7 months later, the Veterinary Company, 13th Mountain Medical Battalion, came into the China-Burma-India theater. After mid-1944, new unit activations within the theater and additional arrivals saw the Army Veterinary Service include as many as 5 separate companies, a veterinary company of a mountain medical battalion, 2 evacuation hospitals, 1 hospital detachment, and 24 animal service detachments (as of December 1944). In that month, the U.S. animal strength alone averaged 5,981 mules and horses in the India-Burma theater. Of course, it must be understood that the China-Burma-India theater was divided into two separate theaters during October 1944, and a number of the foregoing veterinary units had been transferred or moved into China by that time. In the China theater, the units were attached and superimposed upon the Chinese armies in a liaison capacity and as an exemplary chain of animal evacuation. The U.S. animal strength in the India-Burma theater continued to increase, reaching a peak monthly mean of 7,531 mules and horses during February 1945, and of as many as 1,730 mules and horses in the China theater during July 1945. At no time were the true Chinese military animal strengths known.

The animal evacuation plan for the Chinese Army in India was dependent almost entirely on the Chinese veterinary platoons included in the organic composition of the field army and division.[23] These veterinary platoons were comparable in their functional organization to the former U.S. "square" division's veterinary company, included Chinese personnel trained by the Army Veterinary Service, and in the subsequent Burma campaigns were technically supervised by U.S. liaison veterinary officers (*64*). The movement of disabled animals rearward from the Chinese divisional army and veterinary platoons was not impressed during the earlier training periods of the Chinese Army in India because of the known reluctance of Chinese tactical commanders to move any kind of animal outside of their immediate jurisdiction and the belief that the Burma terrain (including jungles and mountains) would make impossible the movement of evacuation and location of veterinary hospital sites. However, when these Chinese units entered Burma, U.S. veterinary units were deployed to support the Chinese veterinary platoons, and an evacuation plan was made operational through the assistance of the U.S. liaison teams with the Chinese tactical divisions. Originally, the 1st Veterinary Company (Separate) of the theater's services of supply organization was so deployed, but during December 1943 it was replaced by the newly arrived Veterinary Company, 13th Mountain Medical Battalion (figs. 63 and 64). The latter moved

[23] Each such platoon was authorized 2 officers, 1 warrant officer, and 24 enlisted personnel; the animal strengths of the Chinese division approximated 1,600 and that of the army, 850 horses and mules.



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FIGURE 63.—Ambulance loading point of the 2d Platoon, Company E (Veterinary), 13th Mountain Medical Battalion, in March 1945, at Lashio, Burma. This veterinary unit was providing rear echelon veterinary services to mounted units of the Chinese 38th Division.

about in the theater's Northern Combat Area Command in support of the Chinese Army in India throughout the North and the Central Burma Campaigns, until its inactivation on 2 June 1945.

Other units, including three separate veterinary companies and an evacuation hospital, were used in the animal evacuation plan of the Northern Combat Area Command during December 1944. However, by that time these were more urgently needed elsewhere, and the needs of the Chinese Army in India were considerably lessened—a few of the Chinese divisions soon being moved out of Burma into China. The veterinary units included a major part of the 7th Veterinary Company (Separate) which assisted in the aerial movement of some 5,000 Chinese military animals into China; its 3d Platoon element, however, was used in the Central Burma Campaign to support the MARS Brigade. The other two companies, the 43d and the 44th—once removed from the schedule for redeployment into China because of Chinese objections against Negro troops—were used in a miscellany of service duties and then were inactivated during June 1945. The hospital unit was the 19th Veterinary Evacuation Hospital, but it was not operational until its equipment arrived when it was transferred to the China theater (February 1945).



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FIGURE 64.—Animal ambulance of the 2d Platoon, Company E (Veterinary), 13th Mountain Medical Battalion.

There was no accurate accounting of the animal morbidity and mortality in the Chinese Army in India. United States veterinary officers on liaison duty with the Chinese armies and divisions frequently provided professional assistance only where the disease and injury were of a more serious nature. The numbers of such cases and the numbers of Chinese animals admitted to U.S. veterinary hospitals, however, totaled more than 20,000 (table 52).

Another plan of animal evacuation was operated for the U.S. tactical organizations that fought in Burma (*64*). The first of two such organizations was the GALAHAD Force or the 5307th Composite Regiment (Provisional), or the more popularly known Merrill's Marauders. It depended on the 31st and the 33d Quartermaster Pack Troops to transport supplies, including artillery pieces which were airdropped after the regiment entered the Burma jungles.[24] Beginning at the head of the Hukawng Valley (during February 1944) with 360 horses and 230 mules, the Merrill's Marauders by August 1944

[24] The 31st Quartermaster Pack Troop came into the theater from the Zone of Interior on 6 Jan. 1944, aboard the animal transport *Samuel H. Walker* which departed New Orleans Port of Embarkation, 14 Oct. 1943, with 329 mules and 26 horses. The 33d Quartermaster Pack Troop came into the theater during December 1943, but its animal transport, *Jose Navarro,* departing New Orleans Port of Embarkation with 330 mules and 28 horses, was sunk en route (26 Dec. 1944). Each shipment was accompanied by a transport veterinary detachment. For the campaign in North Burma, the latter pack troop was remounted with horses newly arrived from New Caledonia.

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TABLE 52.—*Sick and wounded animals of the Allied Chinese armies observed or treated, or admitted for hospital treatment, by the Army Veterinary Service, China-Burma-India and India-Burma theaters*

Cases	Admissions		
	Total	Disease	Injury
Observed or treated by U.S. veterinary liaison officers:			
China-Burma-India (16 May 1943 to 31 Oct. 1944)	9, 513	4, 320	5, 193
India-Burma (1 Nov. 1944 to 30 Apr. 1945)	4, 791	1, 731	3, 060
Admitted into U.S. veterinary hospitals:[1]			
China-Burma-India (16 May 1943 to 31 Oct. 1944)	3, 563	2, 093	1, 470
India-Burma (1 Nov. 1944 to 30 Apr. 1945)	2, 213	1, 482	731
Total[2]	20, 080	9, 626	10, 454

[1] Of the 5,776 cases admitted for hospital treatment, 576 animals died or were destroyed for disease and injury, including: Surra and surra suspect, 113; wounds, all varieties, 63; fistula, 48; laminitis, 27; under observation, 19; epizootic lymphangitis, 18; fracture of bone, 18; equine infectious anemia, 17; malnutrition, 17; pneumonia, 16; quittor, 15; anemia, 13; intestinal fermentation, 13; cicatrix, 12; enteritis, 11; septicemia, 9; piroplasmosis equorum, 8; and 7 each for filariasis, glanders, and strongylosis.

[2] For the period from 1 April through 31 July 1945 (noting the overlap of the month of April in the table), the cases observed or treated in the India-Burma theater totaled 1,370 (723 for disease and 647 for injury), and the hospital cases totaled 1,229 (516 for disease and 713 for injury). For the period from 16 May 1943 through 30 April 1944 alone, hospital treatment days totaled 31,121.

Source: Mohri, R. W.: World War II History of the Army Veterinary Service, China-Burma-India. [Official record.]

lost 90 percent of these animals in the southward drive to Myitkyina, Burma. The losses were as follows (*65*, *66*, *67*):

	Number
Died	160
Destroyed	45
Killed in action	220
Strayed	50
Transferred	70
Unknown	30

The battle casualties were suffered for the most part in a battalion of the Merrill's Marauders that was surrounded for 14 days and subjected to enemy mortar and artillery fire; injuries received in combat additionally resulted in 20 percent of the animals lost by death and 70 percent of those which were destroyed. Exhaustion from overexertion accounted for 70 percent of the deaths and 20 percent of the animals destroyed. Diseases, principally thrush of the feet and some few cases of sand colic and plant poisoning, and injuries due to marching and saddle sores accounted for the remainder of the deaths and destruction. The mules outperformed the horses during the campaign and seemed to better tolerate the noise of gunfire and aerial bombardment. It was believed that nonbattle diseases and injuries would have been lessened by 90 percent had the animals been acclimatized and conditioned before being entered into campaign and had the combat troops been better trained in animal care and management.

Following the capture of Myitkyina, the Merrill's Marauders were succeeded by the 5332d Brigade (Provisional), effective on 10 August 1944 (*68*). The latter, also called MARS Force, comprised the 475th Infantry Regiment, 124th Cavalry Regiment (Dismounted), and the Chinese 1st Infantry Regiment, as well as the 612th and 613th Field Artillery Battalions (Pack) (*69, 70*) [25] and six quartermaster pack troops, the 31st, 33d, 35th, 37th, 252d, and 253d.[26] Their animal strength aggregated 2,960 mules and 2,850 horses. For this number of animals, a brigade veterinary service was organized to include a brigade veterinarian, six veterinary sections, each with a veterinary officer, for the regiments to which the pack troops were attached, and the organic veterinary detachments of the two field artillery battalions.[27] This was supported by the 18th Veterinary Evacuation Hospital (fig. 65) which established station at Myitkyina on 26 September 1944, and by the 3d Platoon, 7th Veterinary Company (Separate) (*71*). Up to 27 December 1944, that hospital received 350 cases of disease and injury, including a great number of so-called foot cases (infested, underrun soles); the latter disappeared, however, after the end of the rainy season. Hospital collection and treatment stations were set up after December 1944 at Nalong and Myothit, but the main body of the hospital was located at Bhamo, Burma.

With the termination of Japanese resistance in central Burma, the 5332d Brigade (Provisional) was disbanded. Its two field artillery battalions with

[25] The 612th Field Artillery Battalion came into the theater from the Zone of Interior on three animal transports, as follows: (1) on the *Cyrus W. Fields,* departing New Orleans Port of Embarkation, 22 July 1944, with 304 mules and 6 horses, arriving at Calcutta, 23 Sept. 1944; (2) on the *Henry Dearborn,* departing New Orleans Port of Embarkation, 16 July 1944, with 313 mules and 7 horses, arriving at Calcutta, 26 Sept. 1944; and (3) on the *William S. Halstead,* departing New Orleans Port of Embarkation, 28 July 1944, with 314 mules and 6 horses, arriving at Calcutta, 4 Oct. 1944. Veterinary transport services were rendered by the 52d and 53d, the 51st, and the 55th and the 56th Veterinary Animal Service Detachments, respectively. The 613th Field Artillery Battalion, less its animals, arrived on 23 Nov. 1944. The two battalions were activated in the Zone of Interior at Camp Gruber, Okla., during December 1943 to January 1944; just before their movement to Camp Carson, Colo., in February 1944, each was assigned a battalion veterinary officer.

[26] The 35th Quartermaster Pack Troop came into the theater, 1 Sept. 1944, on the animal transport *Charles Wooster* which departed New Orleans Port of Embarkation, 29 June 1944, with 310 mules and 8 horses, and was accompanied by the 54th Veterinary Animal Service Detachment. The 37th Quartermaster Pack Troop, departing on 4 Aug. 1944, from the New Orleans Port of Embarkation, arrived on 30 Sept. 1944, on the animal transport *Joshua Hendy,* with 311 mules and 9 horses, and was accompanied by the 57th and 58th Veterinary Animal Service Detachments. The 252d Quartermaster Pack Troop came into the theater on 11 Oct. 1944, on the animal transport *Zone Gale,* which departed New Orleans Port of Embarkation on 5 Aug. 1944, with 298 mules and 9 horses, and was accompanied by the 61st Veterinary Animal Service Detachment. Elements of the last two troops also arrived in the theater on 2 Oct. 1944, on the animal transport *John J. Crittenden,* which departed New Orleans Port of Embarkation on 4 Aug. 1944, with 320 mules, and was accompanied by the 59th and 60th Veterinary Animal Service Detachments. The 253d Quartermaster Pack Troop arrived on 19 Oct. 1944, on the animal transport *Santiago Iglesias,* accompanied by the 62d Veterinary Animal Service Detachment; 141 mules were embarked on 16 Aug. 1944, at New Orleans Port of Embarkation and another 8 mules and 161 horses were embarked on 11 Sept. 1944, at Noumea, New Caledonia (in the South Pacific Area). *See also* footnote 24, p. 595.

[27] These officer personnel included: Brigade Veterinarian, Lt. Col. F. M. Bolin; 475th Infantry Regiment, Capts. H. C. Phelps, P. E. Smith, and C. L. Nowlin; 124th Cavalry Regiment, Capts. W. R. Fetzer, A. M. Pickard, and A. P. Wilson; 612th Field Artillery Battalion, Capt. K. L. Etchinson (evacuated on 28 Jan. 1945) and his replacement, Capt. J. E. Mouw; and 613th Field Artillery Battalion, Capt. J. T. Martin.



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FIGURE 65.—Veterinary officers with the 18th Veterinary Evacuation Hospital. Left to right: Lt. Col. E. W. Young, Maj. Edward C. Phipps, Capt. Charles W. Tate, Capt. John H. Scruggs, Capt. Waldemar T. Berner, and Lt. Alton M. Coddington.

900 animals departed for the China theater during the latter part of May 1944, followed during the next month by the 1,550 animals belonging to the six quartermaster pack troops.

The support for the remount operations of the theater's services of supply began at Rāmgarh when the Army Veterinary Service assisted the U.S.-trained Chinese divisions in their lend-lease receipts of animals from the British and Indian Armies (*64*). Though a veterinary hospital was in operation more or less since August 1942, this Rāmgarh facility was given formal recognition when a detachment of the 1st Veterinary Company (Separate) was detailed there on 27 July 1943. After November 1943, when the first of 10,000 U.S. military animals came into the China-Burma-India theater and the Chinese forces were moved into northeastern India, the center of remount activities was moved northward into the Assam and Burma areas. There the remount depot at Ledo was being serviced by the 1st Veterinary Company (Separate), less its detachment at Rāmgarh. Another detachment of the same company unit established hospital services for a new remount depot at Shillong, Assam, during October 1944, in which area the 1st Veterinary Company (Separate) was fully

re-formed during December 1944. In the interim, the hospital operations by the company at Rāmgarh were taken over (on 6 July 1944) by three locally activated animal service detachments—the 39th, 40th, and 41st—but, in December 1944, these, too, were moved to Shillong, and the original hospital was closed. The veterinary service at the Ledo remount depot was continued by the 2d Veterinary Company (Separate) and the 51st and 52d Veterinary Animal Service Detachments in December 1944, these units arriving from the Zone of Interior at about this time and replacing the 1st Veterinary Company (Separate) which had transferred to Shillong.

Aside from these remount depot hospitals, the Army Veterinary Service established one in Calcutta, where the incoming animals were disembarked. The port hospital facility was operated by the 78th Veterinary Hospital Detachment, beginning in October 1944; before that time, animals coming off the transports and found disabled or too sick for immediate movement northward to Assam and Burma were cared for by the Indian Army's 41st Veterinary Hospital.

China Theater

The veterinary evacuation plan for the Chinese Army in China was one of superimposing U.S. units, in addition to the attachment of liaison veterinary officers, on the Chinese tactical armies and divisions (*72*). The plan was at variance with that used earlier in India to the extent that 19 veterinary animal service detachments were brought into the China theater for attachment to the Chinese armies and divisions, but the rear echelon support of these with U.S. veterinary hospitals and evacuation units was not fully developed. In the beginning, there was a program of sponsoring a so-called Y-Force of 27 Chinese divisions; another program was scheduled later for a Z-Force of additional Chinese divisions in eastern China. However, the southerly advances by the Japanese enemy toward the American airbases disrupted the schedules of preparing the Chinese forces which were necessarily entered into combat when the needs arose. Until this occurred, however, the Chinese units were reorganized and equipped and trained as much as was possible after the pattern of the U.S. Army. Such training was given to more than 300 Chinese Army veterinary officers and to 1,600 enlisted technicians, horseshoers, and stable sergeants of the Chinese military forces (fig. 66). The U.S.-sponsored Chinese army and division were reorganized to include a veterinary detachment, comprising 3 officers and 24 enlisted men, which was designed to collect and treat disabled animals within the relevant army or division. This detachment was a complete entity in itself, uncoordinated with any other veterinary detachment in the Chinese field forces, and was not expected to participate in any sort of an evacuation plan because the Chinese tactical commanders, uncertain of the supply of replacement animals, would use the animals in spite of their inefficiency, or until they died. This frontline Chinese military veterinary service organization was further hampered by the fact that some



FIGURE 66.—U.S. Army veterinary personnel training Chinese military personnel by on-the-job training in better animal care and management, including horseshoeing.

Chinese armies and divisions had no veterinary detachment or one which had only 40 percent of the number of personnel normally authorized.

In order to improve the Chinese unit veterinary service, the China-Burma-India theater, in May 1943, planned for the deployment of at least 30 U.S. veterinary detachments with the Chinese forces (*64*). An unaccountable delay was experienced in the execution of the plan. During July 1944, the War Department approved and ordered the theater to organize 12 veterinary animal service detachments from local resources and began the transshipment of another 12 detachments from the Zone of Interior, the latter arriving during September and October 1944. Of the 12 locally activated detachments (the 39th through the 50th Veterinary Animal Service Detachments), 3 were retained in the India-Burma area, and the 42d through the 50th were moved to the China theater. There, as new elements of that theater's Y-Force Operations Staff, they were immediately attached to artillery regiments, transportation regiments, and the U.S. liaison teams with the Chinese forces participating in the Salween campaign, which led to the opening of the China side of the Burma Road (*73* through *81*). Of the 12 veterinary animal service detachments received from the Zone of Interior, 2 were retained in India and Burma (the 51st and 52d Veterinary Animal Service Detachments), and the

53d through the 62d Veterinary Animal Service Detachments were deployed to the China theater. The latter, after a period of indoctrination and orientation at the Yünnan Field Artillery Training Center, China, were subsequently attached to the U.S.-sponsored Chinese field armies (*82* through *91*). By the end of January 1945, nearly all animal service detachments were attached to a Chinese army (table 53); a few were deployed in the U.S. services of supply centers of veterinary training and remount activities in China. Later, however, with the increased enemy activity against U.S. airbases, all detachments were attached to the Chinese armies and were moved into eastern and then into southern China. In the period from February through August 1945, these detachments and the U.S. veterinary officers with the liaison teams on duty with the Chinese military forces registered 11,105 cases of disease and injury among the animals of the Chinese forces that averaged a monthly strength of more than 21,000 (table 54). During the times that the relevant Chinese units were relatively inactive, the veterinary animal service detachments assisted in programs of training Chinese personnel in veterinary medicine, horseshoeing, and the packing of animals.

During the spring of 1945, the original veterinary planning was extended [28] to superimpose additional units on the Chinese military forces (*72*). Large units, surplus to the needs of the India-Burma theater, were to be brought into China, and a complete U.S. animal evacuation plan was to be established. In fact, the 19th Veterinary Evacuation Hospital and the 7th Veterinary Company (Separate), less its 3d Platoon, had been transferred into China during February and March 1945. Other units were scheduled for movement into China but did not arrive because of more urgent needs at the time for services of supply food inspection detachments and the swift series of events which led to V–J Day. Neither the hospital nor company was used in any evacuation plan on arrival in China; instead, they were used to operate stations along the westward route of the mounted Chinese military forces moving to halt the Japanese advances on Chih-chiang and to open the subsequent offensives in and about Liu-chou (*92*).

In addition to the support of the Chinese military forces, the Army Veterinary Service also cared for U.S.-owned animals which were procured locally or brought into the China theater for transfer to the Chinese (*93*). The latter included approximately 1,500 mules and horses belonging to the two field artillery battalions and six quartermaster pack troops of the MARS Brigade, which was being disbanded following the completion of the Central Burma Campaign. Until these animals began to arrive from the India-Burma theater after traversing the Burma and Stilwell Roads, the China theater's animal strength had gradually increased from a monthly mean in January 1945 of 96 horses and mules to 379 horses and mules by May 1945. These were used in the mounting of the liaison teams and the veterinary units with the Chinese

[28] Plans were prepared to deploy 7 veterinary companies (separate) and 56 veterinary animal service detachments—the latter for each of the 14 Chinese armies and 42 Chinese divisions.

TABLE 53.—*Deployment of veterinary animal service detachments with the Allied Chinese military forces in the China theater*[1]

Veterinary Animal Service Detachment	January 1945		May 1945	
	Chinese unit	Area command	Chinese unit	Area command
42d	Fifth Army	Reserve	Fifty-fourth Army	No change.
43d	(Detached service)	(India-Burma Theater, Services of Supply).	Seventy-first Army	Central.
44th	Second Army	Western	No change	No change.
45th	(Detached service)	(India-Burma Theater, Services of Supply).	do	Do.
46th	Fifth Army	Western	Eighth Army	Reserve.
47th	Seventy-first Army	do	No change	Central.
48th	Eighth Army	Reserve	do	No change.
49th	Fifty-third Army	Western	do	Do.
50th	Headquarters area command	Southern	Eighteenth Army	Eastern.
53d	7th Artillery Regiment	Reserve	No change	Central.
54th	Headquarters area command	Southern	do	No change.
55th	(Detached service)	(Chinese Training Center)	Fifth Army	Reserve.
56th	Sixth Army	Reserve	New Sixth Army	Eastern.
57th	Fifty-seventh Army	do	Ninety-fourth Army	Central.
58th	Thirteenth Army	Central	No change	No change.
59th	Yünnan-Kwei-lin Pacification Administration.	Reserve	Seventy-fourth Army	Eastern.
60th	Second Route Army	Southern	No change	No change.
61st	Sixth Army	Reserve	New Sixth Army	Eastern.
62d	(Detached service)	(India-Burma Theater, Services of Supply).	Seventy-third Army	Eastern.

[1] In the fall of 1944, the 42d through the 50th Veterinary Animal Service Detachments saw service with the Chinese Second, Fifth, Sixth, Eighth, Fifty-third, Fifty-fourth, and Seventy-first Armies along the Burma-China border. Additional changes in the period from June through August 1945 included only the 49th Veterinary Animal Service Detachment with the Chinese Fifty-third Army, being attached to the Reserve Command, and the 54th Veterinary Animal Service Detachment, being attached to the Chinese Fifty-second Army, Southern Command.

TABLE 54.—*Sick and wounded animals of the Allied Chinese Army in China, treated by the U.S. Army Veterinary Service, China theater, February–August 1945*

Date	Mean strength [1]	Admissions			Died or destroyed [2]
		Total	Disease	Injury	
1945					
February	16, 031	646	320	326	21
March	21, 344	566	348	218	112
April	21, 344	1, 106	388	718	49
May	21, 426	2, 755	1, 045	1, 710	73
June	22, 346	1, 965	651	1, 314	80
July	22, 346	2, 680	746	1, 934	186
August	22, 346	1, 387	605	782	209

[1] The strengths are approximated from those obtained from the Chinese military forces.

[2] The specific causes of the loss of 730 animals included the following diseases and injuries: Glanders and glanders suspects, 295; surra, 76; malnutrition, 46; encephalitis and encephalomyelitis, 33; fracture of bone, 33; anthrax, 32; strangles, 16; exhaustion from overexertion, 15; intestinal fermentation, 14; pneumonia, 13; paralysis and paresis, 11; epizootic lymphangitis, 11; and ulcerative lymphangitis, 11.

armies and divisions. With the arrival of animals of the field artillery battalions and quartermaster pack troops belonging to the former MARS Brigade, this strength increased to a peak of 1,740 mules and horses for July 1945. By the end of September 1945, all animals were transferred to the Chinese Army.

Central Pacific Area

Evacuation plans comparable to those operated in the Mediterranean, European, and China-Burma-India theaters were developed in the several areas of the Pacific theater where the animal strengths aggregated a peak of 8,900 horses and mules. These animals belonged to a cavalry regiment, a cavalry quartermaster troop, field artillery battalions, quartermaster pack troops, and remount troops, each including an organic veterinary detachment or serviced by a small veterinary unit. The veterinary units in a few areas were supported by a veterinary hospital. However, the original strategic or tactical planning which led to the assemblage of this number of animals and this staging of veterinary units was changed so that most were not actively deployed into any real campaign.

The carrier-based aerial attack on Pearl Harbor (on 7 December 1941) found most of the 350 animals in the Hawaiian Department assigned to the Hawaiian Department Pack Train (*94*). This organization, with station at Schofield Barracks, Oahu, T.H., was divided into small reconnaissance patrols and pack detachments which were used to improve the trails, lay signal communications, and transport supplies to mountain observation posts; their required professional services were rendered by the department's veterinary sta-

tion hospital (*95*). A small group of animals was stationed at Fort Shafter, Oahu, and were serviced by the department's veterinary general hospital which was moved to Fort Armstrong and then was replaced during March 1945 by the newly activated 113th Medical Service Company (Veterinary).

On 30 June 1944, the Hawaiian Department Pack Train was disbanded, and the 4339th and 4340th Quartermaster Pack Troops were activated at Schofield Barracks. A third pack troop—the 30th—and the 63d, 64th, and 65th Veterinary Animal Service Detachments, one for each pack troop, arrived on 3 December 1944, from the Zone of Interior. At this late date, 916 mules and horses also arrived from the Zone of Interior [29] and were added to the original group of pack train animals to mount the three pack troops. These units were being staged for Operation LONGTOM (an amphibious assault and landing on the southeastern coast of China) which was canceled at a later date; on 15 September 1945, the three pack troops were inactivated. During the 9-month period, the attached veterinary detachments treated 456 cases of disease and injury among the pack troop animals and could refer those of a more serious nature to the veterinary station hospital (*96*, *97*, *98*).

Before the end of the war, the Central Pacific Area's animal evacuation plan for the pack troops was furthered with the activation (on 6 August 1945) of the 38th Headquarters, Veterinary Animal Service. This unit established administrative control over the 63d, 64th, and 65th Veterinary Animal Service Detachments. The four units were assigned to the theater's Combat Training Command on Oahu. Another unit, the 306th Veterinary Hospital Detachment, arrived from the Zone of Interior during June 1945. However, on account of its late arrival (after the discontinuance of Operation LONGTOM planning), this hospital team was attached to the Veterinary Station Hospital, Schofield Barracks, for training, and then was scheduled for deployment to Okinawa when the Japanese surrendered.

With the inactivation of the quartermaster pack troops after V–J Day, the animals were placed on a caretaking basis in the quartermaster service units on Oahu—a few being sold locally, and the remaining 900 being held for UNRRA (United Nations Relief and Rehabilitation Administration). The three veterinary detachments formerly with the pack troops were kept intact at this time in connection with plans for them to accompany the shipment of the UNRRA animals to China.[30] However, before the end of 1945, both the 38th Headquarters, Veterinary Animal Service, and the 306th Veterinary Hospital Detachment were inactivated.

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[29] These animals arrived in two shipments originating from the San Francisco Port of Embarkation: The *F. J. Luckenbach,* departing on 13 November 1944, with 587 mules and 13 horses, and the *William J. Palmer,* departing on 20 November 1944, with 316 mules. Mention may be made that another shipment, originating from the same port, had provided 30 mules to the former Hawaiian Department Pack Train during January 1943.

[30] The 63d, 64th, and 65th Veterinary Animal Service Detachments were inactivated on 14 May 1946. In the preceding month, 792 mules were shipped as planned.

South Pacific Area

On New Caledonia, where approximately 2,800 horses and mules were assembled by late 1942, no animal evacuation plan or hospital was established (*94*). Instead, the veterinary animal service was limited almost entirely to the level of a battalion or regiment, beginning soon after the American First Task Force (later becoming the Americal Division) landed at Noumea. On 1 April 1942, the 97th Field Artillery Battalion (less its animals) arrived from the Zone of Interior and was partially mounted with a few animals obtained locally and 490 horses which arrived from Australia in two shipments, on 25 May and 24 June 1942. The battalion's horses were replaced by mules arriving from the Zone of Interior and the Panama Canal Department on and after 6 July 1942. On this date, a remount unit—Troop A, 252d Quartermaster Remount Squadron, redesignated in January 1943 as Troop B, 251st Quartermaster Remount Squadron—arrived from the Zone of Interior and established a depot on the Ducos Peninsula; it processed all subsequent animal shipping on New Caledonia. Altogether, 781 mules were received, and 2,048 horses arrived from Australia (in the Southwest Pacific Area).

The second of two mounted units, the 112th Cavalry Regiment, arrived 11 August 1942, and was provided with approximately 1,500 animals from the remount depot. While on New Caledonia this regiment, along with the 97th Field Artillery Battalion, and each with its own organic veterinary detachments, was a part of the Americal Division. However, with the transfer of that division to Guadalcanal during November 1942, the two tactical units were subordinated into the so-called First Island Command, South Pacific Area. Up through December 1942, that command's battalion and regimental veterinary detachments treated more than 1,400 cases of disease and injury in the animals of their units (table 55) (*99*).

After January 1943, the number of animals on New Caledonia decreased. The 97th Field Artillery Battalion, with its animals, was transferred to Guadalcanal. The 112th Cavalry Regiment was dismounted during May 1943 and then was transferred to the Southwest Pacific Area; until this time the regimental animal disabilities had totaled 717 cases (table 55) (*100*). However, the regimental animals were turned in to the remount depot on New Caledonia, from which they were transshipped to the China-Burma-India theater over a 1-year period starting in September 1943. In these remount operations, the 112th Cavalry Regiment's veterinary detachment assisted in the operation of the depot's veterinary dispensary. Having been detached from its parent unit since May 1943, the detachment finally departed from New Caledonia during November 1944. At this time, only a few animals remained on New Caledonia, and these were used for administrative purposes, there being only two horses as of June 1945.

The 97th Field Artillery Battalion, with its 947 mules and horses, was moved from New Caledonia to Guadalcanal in three shipments during the

TABLE 55.—*Sick and wounded animals of tactical units, South Pacific Area*

Unit	Period	Average mean strength	Admissions			Died or destroyed	Treatment days (in stables)
			Total	Disease	Injury		
Americal Division and First Island Command.	May–December 1942	1, 631	1, 439			114	22, 033
112th Cavalry Regiment	January–May 1943	1, 334	717	201	516	[1] 45	19, 074
97th Field Artillery Battalion	January 1943–May 1944	746	920	447	473	[2] 124	23, 012

[1] The specific causes of the loss of 45 animals included the following diseases and injuries: Fractures, 12; and wounds, 12.

[2] The specific cause of the loss of 124 animals included the following diseases and injuries: Cachexia and malnutrition, 14; separation of the sole of the foot, 14; ossification of the lateral cartilages of the foot, 12; fractures, 10; and heat exhaustion, 8.

early months of 1943. It was briefly employed in that campaign.[31] Then, for more than a year, the animals were kept on a caretaking basis, during which time (January 1943 through 3 May 1944) the number of cases of sick and injured animals totaled 921; the number of animals dying or destroyed on account of disease and injury was 124 (table 55). During March 1944, when preparations were started for transshipment out of the South Pacific Area to the China-Burma-India theater, a survey of the animals for combat serviceability led to the finding of 83 mules and horses as unsuitable; these were destroyed and another four were transferred to the Guadalcanal Service Command. Then, in two shipments, one on 25 March 1944, and the other on 3 May 1944, the 97th Field Artillery Battalion's animals, totaling 763, were transshipped from Guadalcanal.[32]

Southwest Pacific Area

At the time of the attack by Japan, the Philippine Department's animal strength approximated 1,550 horses and mules (*101*). For the most part, these were located at Forts William McKinley and Stotsenberg, each with a station veterinary hospital, or belonged to four tactical units: The 26th Cavalry Regiment, the 23d Field Artillery Battalion (Battery A) (Philippine Scouts), and the 65th and 66th Separate Quartermaster Pack Troops (Philippine Scouts), each with a veterinary detachment. During December 1941, the Army Veterinary Service in the Philippine Islands treated 297 disabled animals, including 35 battle casualties, of which number 50 died or were destroyed. Another 419 animals were lost by release from corrals or killed in action. During the next month the tactical unit animal strengths approximated 850 animals. During March 1942, the surviving animals which were not in the best condition were being slaughtered to provide food to the troops defending Bataan and Corregidor (*102*, *103*, *104*).

Following the surrender of the Philippines, the tactical planning in late 1942 for the newly established Southwest Pacific Area included the mounting of seven field artillery battalions and the activation of nine quartermaster pack companies (troops). Animal requirements were estimated at 10,792 mules and 7,541 horses (*105*). It was believed that each battalion and troop should be provided with a small veterinary detachment or section, and the latter, in turn, was to be augmented by three veterinary evacuation hospitals. This planning was changed and finally discontinued during late 1943. During July 1943, the 1st Cavalry Division (less its animals), with a complete divi-

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[31] The first shipment, including 222 mules and 78 horses, departed on 16 January 1943, from New Caledonia; the second shipment, comprising 257 mules and 63 horses, was en route, 4–11 March 1943; and the third shipment, comprising 274 mules and 53 horses, was en route, 6–12 April 1943.

[32] The 25 March 1944 shipment, comprising 570 mules and 30 horses, was made on the animal transport, *Virginian,* accompanied by 1st Lt. E. W. George, VC. The 3 May 1944 shipment of 61 mules and 102 horses was made on the *Peter Silvester,* accompanied by 1st Lt. H. L. Marsh, VC. (The latter shipment included an additional 152 animals loaded, on 11 May 1944, at New Caledonia.) The transports arrived at Calcutta, India, during May and June 1944, respectively.

sional veterinary service, came into the theater from the Zone of Interior,[33] but it received only 20 animals which were retained for a few months (*106*). Before this tactical planning came to a stop, approximately 3,500 horses were procured in Australia by April-May 1943 and were assembled at Townsville by Troop A, 251st Quartermaster Remount Squadron, and another 1,521 mules were received from the Zone of Interior and were diverted to New Guinea when the Australian governmental health officials refused to permit their landing on Australia. The horses were issued to a field artillery battalion and four quartermaster pack troops in Australia, and, on New Guinea, the mules were issued to another field artillery battalion and a quartermaster troop.

Against the originally planned requirements, 16 veterinary sections or detachments arrived in Australia during March and September 1943; however, only a few were actually deployed in animal service activities. The latter included Veterinary Sections D, E, F, G, H, and I which were used in the operations of the veterinary dispensary of Troop A, 251st Quartermaster Remount Squadron, at Townsville, or were attached to newly activated or converted mounted tactical units. The units receiving horses from the remount depot were the 62d and 63d Quartermaster Pack Troops and the 167th Field Artillery Pack Battalion, first during February 1943, and then, during April 1943, the 61st and the 68th Quartermaster Pack Troops.[34] The veterinary requirements of these five units were met by the dispensary of the remount depot or by the units' own veterinary detachments—the latter treating more than 800 sick and wounded animals (table 56) (*107*, *108*, *109*, *110*). The situation did not last for any great length of time because, beginning on 24 September 1943, the pack troops were dismounted and their animals were returned to the remount depot, and the field artillery battalion was finally dismounted on 11 November 1943. Within a short time after this, the depot was discontinued and the animals were transferred to the Australian Army; subsequently, many were transshipped to the China-Burma-India theater. The veterinary sections, including those which arrived during September 1943 and were deployed from the onset in veterinary food inspection and medical supply operations (that is, Veterinary Sections K, L, M, N, O, P, Q, R, S, and Z), were disbanded on 1 October 1944, and their personnel were reassigned into several newly activated food inspection detachments.

The 1,521 mules on New Guinea were received in three shipments from the Zone of Interior—those of the 98th Field Artillery Battalion arriving on 23 February and 9 June 1943,[35] and the 323 mules of Troop D, 16th Cavalry

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[33] The 1st Cavalry Division was continued in active service in a dismounted status throughout World War II.

[34] The 61st and 68th Quartermaster Pack Troops came into the theater from the Panama Canal Department and the Zone of Interior, respectively.

[35] The 23 February 1943 shipment of the 98th Field Artillery Battalion departed on 14 January 1943, from the San Francisco Port of Embarkation, with 600 mules on the *Virginian*; 2 animals died en route (heat exhaustion). The 9 June 1943 shipment also originated from the San Francisco Port of Embarkation.

TABLE 56.—*Sick and wounded animals of the 61st, 63d, and 68th Quartermaster Pack Troops and the 98th and 167th Field Artillery Battalions* [1]

Unit and location	Period	Average mean strength	Admissions			Died or destroyed [2]	Treatment days (in stables)
			Total	Disease	Injury		
Australia:							
61st Quartermaster Pack Troop	June–September 1943	170	71	12	59	12	1,088
63d Quartermaster Pack Troop	August–September 1943	241	54	6	48	4	793
68th Quartermaster Pack Troop	May–September 1943	291	146	54	92	15	2,404
167th FA Battalion	February–November 1943	398	570	161	409	26	8,210
New Guinea:							
98th FA Battalion	February 1943–11 March 1944.	683	129	52	77	17	1,966

[1] The data for the 62d Quartermaster Pack Troop are not shown because they were integrated into the reports of sick and wounded animals of the veterinary dispensary, Troop A 251st Quartermaster Remount Squadron, as were the earlier data of the other units in Australia. Likewise, the May 1943 data for the 61st Quartermaster Pack Troop are not shown because they were integrated in the report of disabled animals of the 68th Quartermaster Pack Troop.

[2] The specific causes of the loss of 57 animals in Australia included the following diseases and injuries: Fractures of bone, 8; laminitis, 8; pneumonia, 8; disease of bone, 4; exhaustion, 4; emphysema, 3; hemorrhage, 2; and injury, 2. The specific causes of the loss of 17 animals on New Guinea included the following diseases and injuries: Wounds, 6; fractures of bone, 2; hemorrhage, 2; and 1 each on account of bradycardia, drowning, heat exhaustion, septicemia, strangles, sunstroke, and tumor.

Quartermaster Squadron (Horse) being disembarked on 23 July 1943 (*111*).[36] Both units contained their own veterinary detachments, and that of the squadron also, for a brief period of time, provided professional services to the remount depot facility which was organized at Port Moresby in mid-1943 by the Advanced Echelon of the parent Troop A, 251st Quartermaster Remount Squadron, in Australia. The battalion and troop veterinary detachments were supported by the 16th Veterinary Evacuation Hospital which had arrived and established station on this island base on 17 February 1943 (*112*).[37] Until Troop D, 16th Cavalry Quartermaster Squadron (Horse) was dismounted (20 October 1943), its veterinary detachment reported on 116 disabled animals, including 5 dying or destroyed; most of these were sent to the evacuation hospital for treatment. During a year's period of general inactivity, the animal disabilities of the 98th Field Artillery Battalion totaled 129, including 17 animals dying or destroyed on account of disease (table 56). Of this number, 25 to 30 percent were sent to the 16th Veterinary Evacuation Hospital for additional treatment. The 98th Field Artillery Battalion during this period was reorganized at least twice, with cutbacks in its animal strength, and finally was dismounted on 11 March 1944.

With the dismounting of both the squadron and battalion units, the mules on New Guinea were placed in a caretaking status at the remount depot. After October 1943, the professional services of the depot were provided by the 16th Veterinary Evacuation Hospital. That hospital, in the period from August 1943 through 5 October 1944, received more than 1,100 animals for treatment, most of these originating from the remount depot. The latter date marked the closure of the 16th Veterinary Evacuation Hospital on New Guinea and the start of preparations by it to move into the Philippine Islands where it was entered into the theater's food inspection service. By the time of the movement, most of the mules on New Guinea were transshipped to the China-Burma-India theater.

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CHAPTER XVII

Army Dogs

The Army dogs of World War II marked the first use of large numbers of dogs in the U.S. military forces. In the Zone of Interior, 10,368 trained dogs were issued by dog centers to the U.S. Army and the U.S. Coast Guard; 1,894 of these were transshipped to oversea commands and theaters (*1*). In the Central Pacific Area, two dog training centers issued and reissued 344 trained dogs. Another 200 dogs were obtained or raised in Greenland, and 500 or more trained dogs were borrowed from our Allies and used at the American airfields, bases, and depots in the European theater and the Southwest Pacific Area. These animals received professional care and supervised management from the Army Veterinary Service similar to that provided for the Army's horses and mules—having for its objectives the protection of dog health, preservation of physical efficiency, and the safeguarding of troop health against those diseases transmissible to the human being. These objectives were accomplished by physical examinations; establishment of quarantine procedures; treatment and hospitalization of disabled dogs; practice of preventive veterinary medicine; technical supervision over animal management, including their food, shelter, and transportation; and technical training of dog-handling personnel. In-service deaths, or destructions on account of disease and injury, of trained Army dogs from the Zone of Interior were 1,267 (*2*).

Before World War II, the Army Veterinary Service was concerned with dogs only to the extent that individual veterinary officers at the Army camps provided professional care for troop mascots and animals privately owned by military personnel. At times, there were matters of operating a rabies control program and of supervising the quarantine of pet dogs being shipped, particularly to or from the oversea departments. In 1938 the Veterinary Division, Surgeon General's Office, was asked to furnish medicines for the care of 44 sled dogs[1] at Chilkoot Barracks, Alaska (*3*, *4*). In mid-1941, the Army Veterinary Service made arrangements for the care and reconditioning of 40 sled dogs which had been given to the Army by the Byrd Antarctic Expedition, and later, conducted physical examinations of a few sled dogs which were being procured to augment the Byrd dog teams—these then being transshipped to Greenland (*5*, *6*, *7*). A small project of dog procurement and training was started by the Coast Artillery Corps at Fort MacArthur, Calif., in December 1940 (*8*).

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[1] After January 1941, this group of dogs was transferred to Fairbanks, Alaska.

DOG PROCUREMENT

The foregoing antedates the official recognition which is generally given to Army dogs, 13 March 1942, when the Under Secretary of War granted approval to the Quartermaster Corps to accept 200 trained guard dogs that were offered by the American Theater Wing, Inc. (*9, 10*). The civilian project, dependent upon the volunteer efforts of dogs owners and trainers and without a potential to expand if more dogs were needed, was soon replaced by the War Dog Program (*11, 12*). Under this program, Dogs for Defense, Inc.—representing the interests of the Nation's patriotic dog owners—was named as the agency to procure dogs, other than sled dogs, by donation from civilian dog owners (*13, 14*), and the Quartermaster Corps undertook their training. Sled dogs were to be obtained by Army purchase. During July 1942, the Secretary of War asked for an expansion of the Army War Dog Program, and, 2 months later, the War Production Board named the Army Quartermaster Corps as the sole agency to supply trained dogs to the armed services and other Federal agencies (*15, 16, 17*). On 1 March 1945, Dogs for Defense, Inc., ceased its dog procurements for the Army; thenceforth the Quartermaster Corps purchased or received gift donations of all dogs direct from the civilian owners. Until this time, Dogs for Defense, Inc., had accepted the voluntary donation of approximately 40,000 dogs. After preliminary examination at dog assembly and shipping centers, 18,000 of these dogs were sent at Government expense to the Army dog reception and training centers. The Army procurement numbered 1,380 dogs as of late August 1945.

The veterinary service for these dogs after they had been accepted by the Army, was continuous. It began with the physical examinations that were conducted on the sled dogs and at procurement points on all other Army-procured dogs after 1 March 1945. However, the 18,000 recruit dogs received from Dogs for Defense, Inc., were not examined by the Army Veterinary Service until after their arrival at the Army dog centers. The latter group of dogs may have been examined by civilian veterinarians on a volunteer basis at the Dogs for Defense, Inc., assembly areas and shipping points (*18, 19, 20*). An estimated 1,500 recruit dogs died, or were destroyed with the owner's consent, for physical disability,[2] or on account of disease or injury before being actually entered into the Army dog centers (*2*). One recruit dog developed rabies within a few days after its arrival at the Fort Robinson, Nebr., dog training center (*21*), and an investigative survey of dogs for leptospirosis at the Front Royal, Va., center showed that leptospirosis was far more widespread in the United States than was suspected (*22*). Unfortunately, both the American Veterinary Medical Association and the American Kennel Club

[2] A total of 2,500 recruit dogs were destroyed on account of temperament. An unknown number of recruit dogs, rejected for temperament or physical disability, were returned on request of the civilian dog owners.

could accomplish little to prevent this flow of disabled and diseased recruit dogs into the Army dog centers.

In the Zone of Interior, six Army dog centers (table 57)—originally designated war dog reception and training centers—were established (*21*, *23* through *28*). Their mission was to receive, train, and issue dogs and to instruct dog-handling personnel. The Camp Rimini center was designed particularly for processing only sled and pack dogs,[3] and the installation at Beltsville was established within the Agricultural Research Center for purposes of conducting research on dog nutrition and developing an Army dog ration. These dog centers, with the exception of the Cat Island installation (*24*) which was originally an activity of the Army Ground Forces (September 1942 to April 1943),[4] were operated by the Quartermaster Remount Service in a manner comparable to the operation of remount depots (for horses and mules). Each dog center organization included a veterinary detachment which operated a dog dispensary or hospital. Drawings for the construction of these dispensaries were prepared during November 1942 by

TABLE 57.—*Location of Army dog centers, Zone of Interior, 1942–45*

Location	Opening date	Closing date
Front Royal, Va	4 Aug. 1942	17 Nov. 1944
Fort Robinson, Nebr	3 Oct. 1942	December 1945
Cat Island, Gulfport, Miss	September 1942	15 July 1944
Camp Rimini (Helena), Mont	11 Dec. 1942	20 June 1944
San Carlos, Calif	28 Dec. 1942	31 Oct. 1944
Beltsville, Md	January 1943	August 1944

the Office of the Chief of Engineers (*29*). The veterinary hospitals, on recommendations made by the Veterinary Division, Surgeon General's Office, were constructed outside of the dog training areas and, wherever possible, near existent veterinary (horse and mule) hospitals (fig. 67) in order to effect economies of certain services and supplies (*30*, *31*). The veterinary hospital requirements were described as comprising an office, storage room, an examining-operating room, and a number of hospital kennels equal to 6 percent of the center's dog population. The capacity of the veterinary facilities newly constructed in the six dog centers in the Zone of Interior approximated 400.

[3] A few Army-owned pack or sled dog teams were trained for the Army at a civilian dog kennel. The Army Veterinary Service experienced difficulties in establishing a program of preventive veterinary medicine for these dogs until after an enzootic of canine distemper had caused the loss of many dogs.

[4] The Army Ground Forces project on training dogs was conducted by a civilian-employee trainer whose methods proved to be undesirable, including a disregard for the veterinary and humane treatment of the animals during their training. The project was located in an area where filariasis was indigenous, and, on its discontinuance, the center's dogs were refused admission into at least one other dog center.



FIGURE 67.—Interior of the Front Royal, Va., dog center hospital, showing the aisleway into the surgical ward.

During the first 2 years, dogs received in the Army dog centers were representative of a great number of breeds. At one time 18 dog breeds were listed by Dogs for Defense, Inc., as being acceptable for donation to the Army. Later, only 7 breeds of dogs were accepted: German shepherd, Belgian sheep dog, Doberman pinscher, farm collie, Siberian Husky, Malemute, Eskimo, and crosses of these breeds. Regardless of their breeding, the dogs were examined individually by Veterinary Corps officers as to physical condition, age, height (as measured at the shoulder), sex, and color. The dog most desired was one between 14 months and 2 years of age, 20 to 26 inches tall, weighing 40 to 80 pounds, and possessing a neutral-colored haircoat (that is, no solid white or black color). A male dog was preferred, although a spayed bitch (unsexed female dog) was acceptable. At the beginning, female dogs were recruited, but after the fall of 1943 many of these were spayed [5] pursuant to a policy agreeable to Dogs for Defense, Inc. (*32*). Other features of this veterinary examination included observations for general conformation, freedom from unsoundness and clinical signs of disease, and classification as to suitability for a particular kind of military work such as

[5] The female dog during periods of oestrus unaccountably caused the disruption and lengthening of the dog's training. Manifestly superior breeding bitches, including sled types of dogs, were not spayed. Dog owners were to be advised of this action by Dogs for Defense, Inc.

attack (or police), cart, messenger, pack, sentry, scout, sled, or trail. Specialty dogs were those trained in mine detection and chemical warfare agent detection, and the so-called casualty dog.[6]

Veterinary physical examination procedures relating to health status of the recruit dogs were enunciated first in the letter, dated 4 March 1943, from the Veterinary Division, Surgeon General's Office, to Veterinary Corps officers at the Army dog centers in the Zone of Interior. This directed that examinations be made for the following diseases: Leptospirosis, filariasis, demodectic mange, sarcoptic mange, and general parasitism. Dogs shown to be infected with leptospirosis were to be destroyed, and those having filariasis, mange, or any physical defect which could impair their usefulness were to be disposed of in a manner deemed to be in the best interests of the Army and the civilian dog owner. However, where the recruit dogs had the normal intestinal parasitic infestations or showed clinical symptoms of an acute infectious or contagious disease (such as canine distemper), they were to be treated and held until recovery.

Following the physical examination, the acceptable recruit dogs were placed under a 21-day quarantine. During this time, the dog center veterinarian initiated a dog record card, identified the dog with a tattoo on the dog's left ear or flank, in accordance with the Preston brand system used in horses and mules, administered anthelmintics for the treatment of intestinal parasitism, and dipped the animals to control external parasites. Prophylactic inoculations were administered against canine distemper, if the dog was less than 2 years of age, and against rabies.

ARMY DOG CARE AND MANAGEMENT

Following their reception, processing, and training, the dogs were issued by the Army dog centers. During the advanced stages of the training, the potential dog-handling personnel were ordered into the centers to become acquainted with the dogs and to receive on-the-job instructions in dog care and management. The dog issues were made individually to camps, depots, ports, and airbases, or by groups, such as to casual detachments and platoons. These issues from the Army dog training centers in the Zone of Interior totaled 10,368 dogs—of which number, 7,665 went to the Army and 3,174 were issued to the Coast Guard. It was axiomatic that only healthy dogs in good condition be issued. Following issue, the pertinent commander became responsible for the use, care and management, and veterinary service for the trained dogs. This veterinary service normally was provided on call by the nearest assigned and most readily available Veterinary Corps officer, although the larger dog

[6] The mine detection dog, developed by the Quartermaster Corps, did not prove to be very satisfactory. The gas detection dog was studied by the Army Veterinary Service. The casualty dog was one trained in the locating of casualties. In field service tests, such dogs failed to differentiate casualties from the unwounded personnel. The casualty dog was rejected by the Army Ground Forces.

detachments and platoons had their own organically assigned veterinary personnel.

Whether in the Army dog centers or in the field, in the Zone of Interior or overseas, the problems of managing, feeding, sheltering, and transporting dogs were common to all concerned throughout the Army. Methods of assuring a proper approach to these included the dissemination of technical information, the operation of programs of training, and the inspection and reporting on Army dogs on duty with troops. The beginning of the war found a single technical publication relating to dogs—the Army field manual on the care of transport dogs in Arctic areas (*33*, *34*). For the purpose of advancing good zootechnics in the developing Army dog program in the Hawaiian Department (Central Pacific Area), a veterinary officer and a civilian dog trainer prepared a training memorandum in booklet form on dog handling, feeding, and care; it was given Army-wide distribution in a circular letter by the Office of the Quartermaster General during November 1942 (*35*, *36*). In the following year, the Veterinary Division, Surgeon General's Office, provided professional assistance in the revision of the technical manual relating to pack and sled transport dogs and in the development of another relating to the care and management of Army dogs in general (*37*, *38*, *39*).

These publications were used in programs of training for all dog-handling personnel when ordered into the dog centers to receive dogs. In the Zone of Interior this training was received by 2,100 Army personnel and 2,700 Coast Guard personnel. Closely related to this training was the integration of certain veterinary subjects in the mobilization training programs which were developed for the qualification of officer and enlisted specialists as dog trainers for the Army (*40*); 15 percent of their technical training period included instructions in first aid, preventive veterinary medicine, foods and feeding, kennel sanitation, transportation of dogs, and use of the dog gas mask.

Another control feature over Army dogs was the veterinary inspection and reports on their efficiency and health. Its usefulness in the command evaluation of Army dog deployment was recognized in the Central Pacific Area where a specially devised report was used and in the European theater where the inspections were recorded in monthly recurring sanitary reports (*41*, *42*). Unfortunately, the control was not practiced Army-wide because the Control Division, Army Service Forces, rejected the recommendations made by the Surgeon General's Office for initiating a veterinary reporting system on Army dogs such as was being maintained for the Army's horses and mules (*43*). During May 1944, the existent Veterinary Report of Sick and Wounded Animals [7] was revised to include an entry of the dog mean strength, but this new report form did not become available in most areas until late in the war or after V–J Day.

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[7] Also referred to as WD AGO Form 8–129, Control Approval Symbol MCV–22, which superseded the former WD MD Form 102.

The food for Army dogs was of good quality, nutritious, and clean. The same quality and sanitary control over the dogfood supply was maintained by the Army Veterinary Service as was applied to the feed and forage supply for Army horses and mules. Sometimes this dogfood originated with the food supply for troops. For example, canned evaporated milk, canned salmon, and canned meat components of Type C rations were fed to Army dogs,[8] and in the Central Pacific Area, a daily issue of 2 pounds of fresh frozen ground beef was authorized for each dog (*44*). Actually, the dogfood supply throughout the Army was quite variable and presented a number of nutritional and sanitary problems. The feeding of raw rabbit meat, for example, caused a serious outbreak of taeniasis (or tapeworm) among dogs in the Northwest Service Command (*45*). In the United Kingdom (in the European theater), the Army Veterinary Service required that all meats be cooked, after finding that some of the supply included meats rejected for human use on account of tuberculosis (*46*).

In the Zone of Interior, during November 1942, the Quartermaster Corps authorized the procurement of commercial dogfood and meat—the latter to supplement the diet (*47*). The commercial dogfoods then available and specifically marketed for sale to the owners of household pet dogs and cats could not, without supplementation, maintain an Army dog in good working condition (*48*). The dogfood manufacturers later experienced difficulties in maintaining high-quality products under the conditions of wartime shortages and priority allocations of raw material. This was taken into account during March 1944 when the War Department amended the Army's dogfood supply and authorized meat as the principal component of the dog ration. All kinds of meats and meat by-products were suggested, but special reference was made to horsemeat. Horses and mules found unserviceable and condemned by the Army were mallein tested for glanders (*49*) and slaughtered under veterinary supervision at a number of Army camps, dog centers, and commercial establishments. Particular attention was paid to interstate movements of the horsemeat, pursuant to Federal laws and regulations, as well as to its special labeling ("Horse Meat for War Dogs Only") and handling separate from the troop food supply. At the Seattle, Wash., depot, the Army Veterinary Service developed a canned dogfood by combining ground horsemeat and herring; this was supplied to the Alaskan Department (*50*).

Notwithstanding the great variety of dogfoods used during the war, it must be understood that the Veterinary Division, Surgeon General's Office, undertook the study of dogfood in July 1942 or soon after the official start of the Army dog program. In November 1942, the Office of the Quartermaster General expressed requirements for a complete Army dog ration (*51*). Tech-

[8] The meat components of the Type C ration were meat and vegetable hash, meat and vegetable stew, and meat and beans. These were trial-fed to dogs at three centers in the Zone of Interior pursuant to the request of the Office of the Quartermaster General, dated 25 May 1944. The Army dog center veterinary officers, reporting on the trial feeding, found that Type C ration meat components were satisfactory supplements.

nical assistance was sought from the civilian Joint Committee on Feeds, American Veterinary Medical Association and American Animal Hospital Association (*52, 53*), and from members of the dogfood industry. In cooperation with the U.S. Department of Agriculture, studies made on the nutritional requirements of dogs led to the development of at least five dogfood formulas.[9] Many of these were trial-fed in tests conducted by the dog centers at Beltsville, Fort Robinson, and Front Royal (*51, 54*). Considerable difficulty was experienced with the procurement of ration components that were inexpensive and available under the conditions of wartime supply and in obtaining a suitable binder (*55, 56, 57, 58*). The trial feeding was stopped in mid-1944 after the test rations were shown to have poor palatability and to cause diarrheal conditions and weight losses among Army dogs when working (*59, 60, 61, 62*).

Studies on the defensive measures and protective equipment against chemical warfare were initiated (*63*). Beginning in August 1942, research by veterinary personnel of the Medical Section, Office of the Chief of Chemical Warfare Service, Edgewood Arsenal, Md., was conducted on the anatomical and physiological features that increased the dog's susceptibility to chemical agents. This led to the engineering of a dog gas mask which, after service testing at the San Carlos dog center, was standardized and procured for issue to Army dogs in the oversea theaters (*64*). During 1944, these research studies led to the approval by the Surgeon General's Office of the issue of BAL (British anti-lewisite) eye ointment to dog handlers in the oversea theaters (*65*).

The housing problem for Army dogs, much like the feeding problem, was met in a variety of ways throughout the Army. The Front Royal dog center maintained a large number of dogs in individual kennels constructed about a wooden barrel and a front porchlike addition. At Fort Robinson, a double-compartment kennel was devised for protection against the cold and included a roof on hinges which could be turned back for ease of cleaning. Individual kennels were favored over buildings which could house several dogs. Later, the Veterinary Division, Surgeon General's Office, cooperated with the Office of the Chief of Engineers in the development of plans for a single dog kennel and a kennel building[10] with capacities up to 80 dogs (figs. 68 and 69) (*66, 67, 68*). However, the development did not prevent the heterogeneous array of dog kennel construction that appeared in the Zone of Interior and in over-

[9] Tentative U.S. Army specifications for dogfood ration (dry), were dated 14 October 1942, 9 November 1942, 3 December 1942, 22 February 1943, and 19 November 1943. The latter comprised the following ingredients, in pounds: Yellow corn meal, 8; wheat gray shorts, 10; wheat red dog flour, 16; second clear red wheat, 20; meat meal, 15; animal liver and glandular meal, 6; dried skim milk, 4; soybean oil meal, 5; peanut oil meal, 5; hydrogenated shortening, 3; alfalfa leaf meal, 2; bone meal, 3; dried brewer's yeast, 1.37; iodized salt, 1; fish oil, 0.63; and water. The composition of the final product was not under 28 percent protein, 7 percent fat, and 40 percent nitrogen-free extract, and not over 3 percent fiber and 8 percent moisture.

[10] The plans for the kennel buildings could be used also in constructing a veterinary dog hospital at Army dog centers and camps, the former being attached to the type of veterinary dispensary as previously described.



FIGURE 68.—A multiple-kennel unit at the Front Royal, Va., dog center.



FIGURE 69.—Cleaning and disinfection of Army dog kennels, Front Royal, Va., dog center.

sea theaters. In the Panama Canal Zone, a so-called tropical kennel—screen-enclosed and elevated above the ground—was developed. A collapsible-type wooden kennel was developed in the Central Pacific Area. The War Dog Detachment, China-Burma-India theater, sheltered its dogs from the tropical heat by hanging canvas over the kennels which were placed in an elevated position over freshly dug holes in the ground.

In the matter of transportation of dogs, the Army Veterinary Service assured the movement of only those which were in good physical condition and free of infectious or contagious diseases, and provided veterinary health certificates to cover the shipments. Within the Zone of Interior, no law or civilian regulatory agency existed that could prevent the interstate, export, or import shipment of Army dogs—in fact, almost any dog—on account of health reasons. The Army Veterinary Service alone took steps against the dissemination or introduction in the United States by Army dogs of such diseases as filariasis and leptospirosis. Actually, few Army dogs were returned to the Zone of Interior from the oversea theaters. Other than quarantine requirements which affected the deployment and disposition of Army dogs, transportation presented no real problem, whether by truck, railroad, airplane, or ship. Veterinary reports on seven truck shipments in the Zone of Interior during 1945 showed no losses on account of disease and injury among the 71 dogs involved. Railroad shipments were equally successful—no losses being reported among 1,043 dogs in 130 shipments during the war period. Likewise, no real problem was experienced in connection with their movement by airplane.[11] As a matter of fact, the sled dog teams with the Air Forces Arctic search and rescue units were trained for routine movement by airplane. During the Burma campaigns, disabled dogs of the China-Burma-India War Dog Detachment were evacuated by airplane (*69*).

Records on 10 overwater movements by ship involving 341 animals indicated that only four dogs were lost. The Army Veterinary Service at the ports of embarkation routinely examined the dogs prior to their loading and assisted in the supervision of those preparations of ships that had a bearing on animal health and management (*70* through *77*). Ordinarily, the kennel crates which were used in bringing the dogs to the ports were installed on the ship's deck (fig. 70). A certain amount of gastroenteric disorders and dermatitides was reported in the dogs while en route, but these were caused by the dogs licking or being in contact with salt water which was used in flushing the kennel area on the ship (*78*, *79*, *80*). In the voyages through tropical waters, it became necessary to clip the heavier-coated dogs and to keep the dogs off the hot sun-heated steel decks.

The Army Veterinary Service also cared for dogs outside of Army control, including those issued from the dog centers for use in the protection of civilian establishments which were engaged in manufacture of critical supplies

[11] So far as is known, no studies were made on the dropping of dogs from airplanes by parachute as were conducted in the British Army.



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FIGURE 70.—Special shipping crates for dogs, stowed aboard ships loading out of the Los Angeles, Calif., port. The processing of dogs for oversea deployment in World War II was under the supervision of the port veterinary service, using the same principles of preventive veterinary medicine that have been developed over a quarter of a century for the shipment of horses and mules.

or were vital to civilian economy. However, in the Zone of Interior, in instances where Veterinary Corps officers were not readily available, service command commanders were authorized to obtain the services of local civilian veterinarians to treat Army dogs at civilian establishments (*81*). A large number of the Army-trained dogs that were issued to the Coast Guard came under the professional supervision of Veterinary Corps officers—these being attached to Coast Guard districts under the original provisions of a wartime agreement, between the Secretary of War and the Secretary of the Navy in September 1942, relating to the mounting of beach patrols (*82* through *86*).

The Coast Guard dogs used in the Central Pacific Area [12] were given professional services on request (*44*). There too, U.S. Marine Corps "devil dog" platoons, arriving during September 1944, were cared for by the district veterinary officers on the islands of Maui and Hawaii. Special veterinary quarantine and professional services were rendered in the Hawaiian Islands for seeing-eye dogs [13] belonging to discharged veterans (*44. 87. 88. 89*).

The diseases and injuries reported in Army dogs were of the variety which are observed in household dogs. The diseases and injuries commonly observed in trained Army dogs included digestive upsets, respiratory disorders, and bite wounds; also filariasis which was cause for the return of many from the Army camps to the dog centers for disposition. In the Zone of Interior, actual losses of the dogs at Army camps were negligible (*90. 91. 92. 93*). For example, in the First Service Command with 563 dogs during 1943, only 9 dogs died or were destroyed on account of disease and injury.

However, the losses and the morbidity rates were greater at the Army dog centers where recruit dogs were assembled, conditioned, and trained, as seen in the following tabulation of dog morbidity and mortality at the Front Royal dog center:

Average mean strength	786
Admissions:	
For disease	696
For injury	174
Total	870
Treatment ---days	14,354
Average days per admission	18
Died or destroyed	[1] 308
Number admitted per 1,000 average animal strength per year:	
For disease	965.7
For injury	241.7
Total	1,207.4
Number per 1,000 average animal strength per year died or destroyed	427.5

[1] The specific causes of the loss of 308 dogs included the following diseases and injuries: Filariasis, 223; leptospirosis, 19; and sarcoptic mange, 7.

The dog morbidity and mortality at the Front Royal dog center may be compared with those reported at Fort Robinson where, with an average mean strength of 1,340 dogs in the period from January 1943 through December 1945, the losses on account of disease and injury approximated 783.4 per 1,000

[12] Between October 1944 and June 1945, more than 50 Coast Guard dogs were entered into quarantine under the supervision of the Army Veterinary Service at Fort Armstrong, Oahu, pursuant to the animal quarantine laws and regulations of the Territory of Hawaii.

[13] The veterans' seeing-eye dogs were obtained from civilian sources through the facilities of the Veterans' Administration. One such dog, on arrival from the Zone of Interior, was found to have filariasis.

average dog strength per year (*21*). This loss included the death or destruction of 536 dogs with canine distemper or its complications. Based on reports of 1,826 cases of canine distemper for 1942 through 1945, the case fatality rate for this disease approximated 31 percent. At the San Carlos dog center, admissions for veterinary hospital treatment in the period from January through August 1943 totaled 1,183 of which number 87 animals died or were destroyed; an estimated 4.5 percent of that dog center's animal strength was in the veterinary hospital at all times (*94*). These 1,183 hospital cases included 211 for enteritis, gastritis, and gastroenteritis, 198 for coryza (colds) and pneumonia, 113 for canine distemper, and 31 for eczema. At all dog centers, the control of external parasites (fleas, sand gnats, and ticks) and the treatment for internal parasitism were continuing problems. Bites of venomous snakes at the Cat Island center and burns in 92 dogs at the San Carlos dog center, which was partially destroyed by windstorm and fire (in December 1943), were the more unusual cases of dog wounds.

Aside from the routine professional veterinary services, programs of disease research and development on disease control were undertaken. The Front Royal dog center and the Army Veterinary Research Laboratory, with the assistance of the Army Institute of Pathology, collaborated in studies on leptospirosis and filariasis. Detailed necropsy protocols were made on 340 dogs during the period from 1 December 1942 through 20 October 1944, with results as follows (*95, 96*):

Pathological diagnosis	*Number*
Infectious and parasitic diseases:	
Ancylostomiasis	3
Canine distemper	6
Filariasis	60
Leptospirosis	63
Sarcoptic mange	2
General diseases:	
Diabetes	1
Jaundice	2
Septicemia	2
Tumors	8
Diseases of the nervous system and organs of special sense:	
Amaurosis	5
Amblyopia	1
Cataract	1
Encephalitis and encephalomyelitis	23
Encephalomalacia	2
Keratitis	1
Myelitis	2
Paraplegia	2
Others	1
Diseases of the circulatory system:	
Endocarditis	1
Myocarditis	4

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Pathological diagnosis—Continued	*Number*
Diseases of the respiratory system:	
Pneumonia	81
Diseases of the digestive system:	
Dilation of stomach	1
Enteritis gastroenteritis	34
Torsion of small intestine	1
Diseases of the urinary system:	
Calculus	1
Cystitis	6
Nephritis	10
Diseases of the skin and cellular tissues:	
Acanthosis nigricans	3
Dermatitis varicelliform	1
Eczema	1
Ill-defined diseases:	
Rabies suspect	4
Injuries (violent and accidental causes):	
Heat exhaustion	3
Suffocation	2
Sunstroke	2
Total	340

Diagnostic tests on filariasis were studied at the San Carlos dog center in cooperation with the Ninth Service Command Medical Laboratory—some of these eventually finding their way into the research on human filariasis in the Southwest Pacific Area.

OVERSEA DEPLOYMENT

Army dogs were deployed in most of the oversea theaters during World War II. These included the 1,894 animals in casual detachments, replacement shipments, a mine detection company, and 15 dog platoons that were sent from the Zone of Interior. One of the earlier dog detachments shipped overseas was the eight-dog organization that was used in the Southwest Pacific Area to test the dog in jungle warfare. Larger detachments—each with attached veterinary personnel—were shipped to New Caledonia (in the South Pacific Area) and the China-Burma-India theater, and an Engineer Corps company of mine detection dogs was sent to the Mediterranean theater (fig. 71). Other dogs were sent to the Alaskan Department, the Caribbean Defense Command (including the original Panama Canal and Puerto Rican Departments), the Northwest Service Command (in western Canada), and the oversea base commands in Greenland and Newfoundland. Hundreds of others were trained locally in the Central Pacific Area and were procured from Allied sources in the European theater and the Southwest Pacific Area. Local procurement was occasioned by the imposition of restrictive or prohibitive quarantines against dog importations into the Territory of Hawaii, the United Kingdom, and Australia.



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FIGURE 71.—A guard dog party of the War Dog Detachment, China-Burma-India theater, detrucking in the Myitkyina, Burma, area in July 1944.

The early reports of the apparent successes with dogs in certain kinds of military work gave origin, in the spring of 1944, to a unit suitable for assignment and deployment with the ground forces. This was the Quartermaster War Dog Platoon (including 24 messenger and scout dogs as well as 1 mine detection dog); later, in that year, it was redesignated [14] as the Infantry Scout Dog Platoon (including 27 animals) (*97*, *98*, *99*). The platoon included the space authorization for one veterinary enlisted man in the grade of sergeant, who was trained and equipped to provide first aid care and treatment to the platoon dogs. Additional professional assistance was to be sought by the enlisted technician from the nearest available veterinary officer in the theater of operations. A total of 21 such dog platoons were activated in the Zone of Interior; of these, 15 were deployed overseas, as follows: 7 to the Southwest Pacific Area, including 2 platoons which were transferred from the Central Pacific Area and another platoon which arrived first in the South Pacific Area; 1 to the Central Pacific Area; 6 to the Mediterranean theater; and 1 to the European theater. Platoons which were not deployed overseas were six in number, the 46th through the 51st Infantry Scout Dog Platoons.

[14] The mine detection dog was removed from the platoon, the number of messenger dogs was decreased from 12 to 6, and the number of scout dogs was increased from 12 to 18.

Another type of unit having dogs was the Army Air Forces Arctic Search and Rescue Squadron (*100*, *101*). The squadron Flights B, C, and D, each with veterinary enlisted personnel, were each authorized 36 dogs to mount 4 dog sled teams. Dog sled rescue teams were used by the Alaskan and the North Atlantic Divisions of the Air Transport Command (*102*).

Wherever deployed, the dog detachments and platoons—many with attached veterinary personnel—were provided all assistance possible by the Army Veterinary Service in the theaters and oversea commands. This included aid in the procurement of dogfood, veterinary supplies, professional treatment, and obtaining command attention to matters relating to zootechnics and animal health. The outstanding problem was quarantine. The latter probably ranked second only to the more important and basic factor of military usefulness or tactical efficiency in determining whether or not dogs would be deployed. Animal quarantine gained its importance with respect to its influence on the shipment of U.S. Army dogs from the Zone of Interior. None were sent to the United Kingdom, and all were prohibited entry into Australia; in the Territory of Hawaii, initial requirements were satisfied with the output from a locally developed Army dog procurement and training program.

European Theater

In England, the military needs for dogs were met by the loan of trained sentry dogs from the British Ministry of Aircraft Production (*46*, *103*, *104*). These dogs were received by the U.S. Guard Dog Training School, Gloucestershire, England, established in late 1943, where a program of instruction in dog handling was conducted for American soldiers. For a short period of time, veterinary officers were assigned to the school to register the dogs (or tattoo them for purposes of identification) and to vaccinate the dogs against rabies (*105*). The dogs, issued in teams of eight, became the responsibility of the commands to which assigned, and the Army Veterinary Service was assigned the responsibility to provide first aid or emergency treatment for those becoming disabled and to supervise the care, management, and feeding of the dogs within such commands. Unfortunately, the theater's veterinary service was handicapped because the Quartermaster Corps could not advise on the location and the expected deployment of the dogs and the Chief Surgeon's Office withheld early approval on requisitioning the necessary veterinary supplies (*106*, *107*). The former situation was overcome somewhat during October 1943 when monthly sanitary reports were required from commands having British-trained dogs (*42*). The other problem was lessened when the shipping of supplies from the Zone of Interior became less critical and veterinary animal service equipment and medicines were stockpiled. In the interim, authorization was granted for calling upon the British civilian veterinarians to treat the disabled dogs and for the return to the British of seriously disabled dogs. By the end of 1943, an estimated 22 teams of these dogs were on duty with the U.S. forces.

A large number of the British-trained guard dogs accompanied the U.S. forces in the campaigns on continental Europe. Before their departure from the United Kingdom, the dogs were immunized against rabies and again at yearly intervals (*108*). During 1944, the Army Air Forces had an estimated 250 dogs (*109*), and another 50 were used by the First U.S. Army. Locating the dogs was a major veterinary problem. Records of those becoming sick or injured seemed to have not been kept. In December 1944, on request, disabled dogs requiring extensive care or treatment were evacuated to a British veterinary hospital located in the vicinity of Rouen, France.

It was not until some time after the cross-Channel invasion of the European Continent that Army dogs of U.S. origin were brought into the European theater. Coming directly into France, these dogs could be deployed at once without holding them in quarantine, as would have been imposed if the dogs were landed in the United Kingdom for staging and subsequent use on the Continent. As of 1 August 1944, a dog unit—the 42d Quartermaster War Dog Platoon (Mine Detection)—was being used by the First U.S. Army, which also had British-trained guard dogs (*110*). During the early months of 1945, 23 dog sled teams were flown into an airfield at Thionville, France, from the Dog Rescue Unit, North Atlantic Division, Air Transport Command. These were to be used to assist in the medical evacuations from the frontline areas which were covered with snow at the time; however, the snow soon disappeared, and the teams were little used. These teams were assigned to the First and Third U.S. Armies.

Southwest Pacific Area

Australia (in the Southwest Pacific Area) refused the entry of animals from the Zone of Interior (*111*). An eight-dog detachment sent there in early 1943 was redeployed to New Guinea and then to Goodenough and New Britain Islands. Pending their preparations for return to the United States, sometime after February 1944, three dogs were destroyed for reason of having been used in an area where scrub typhus was prevalent among troops, and no factual information was available on the transmission of this disease by dogs harboring the insect vector (mite).[15] Subsequently, seven war dog platoons came into the Southwest Pacific Area and were used in the campaigns in New Guinea, Northern Solomons, Philippines, and Ryukyus Islands. The demands in Australia were met in part with a local dog program, evolving about the Quartermaster Dog Kennels, which was established in mid-1943. As of the fall of 1943, the Veterinarian, Base Section 3, Brisbane, was providing professional care for 35 dogs assigned to a quartermaster unit (*112*).

The dog platoons coming into the Southwest Pacific Area included the 25th Quartermaster War Dog Platoon on Bougainville and the 26th Quar-

[15] The cause of loss of the other five dogs previously included: two destroyed for gun-shyness, one ran off, and two died (cause unknown).

termaster War Dog Platoon on Morotai; subsequently, both were entered into the Philippine campaigns. The 39th and 43d Quartermaster War Dog Platoons arrived later, as did the 40th and the 41st Quartermaster War Dog Platoons which came into Leyte from the Central Pacific Area during late 1944. Gastrointestinal disorders without apparent cause or due to change-over to type C rations, ancylostomiasis, and eczema were experienced as the more common diseases of the dogs in the tropical Pacific islands (*113*). Revaccination against rabies became necessary after the dogs arrived in the Philippine Islands. The 40th, 41st, and 45th War Dog Platoons—the latter having had a stopover on Espíritu Santo (in the South Pacific Area)—were deployed with the Tenth U.S. Army after the landings on Okinawa (1 April 1945) (*114*).

Central Pacific Area

The Territory of Hawaii, unlike Australia, permitted the entry of Army dogs from the Zone of Interior but imposed a 120-day quarantine period under the provisions of local laws and regulations which had been in effect for many years (*44*). Thus, during September 1944, two dog platoons (the 40th and 41st Quartermaster War Dog Platoons) came into the Territorial Animal Quarantine Station, Honolulu, but before long the platoons were transshipped to Leyte (in the Southwest Pacific Area). Of course, any holding of dogs inactive during quarantine was detrimental to the unit's efficiency. Thus, in the spring of 1945 when a third unit—the 44th Infantry Scout Dog Platoon—arrived, the Governor of Hawaii relinquished civilian responsibility to the Army to maintain a "working quarantine" over these trained Army dogs (*115*). However, the responsibility of maintaining the quarantine outweighed other factors, and the platoon was soon transshipped to Saipan (in the Marianas group) for continued training. Actually, the original requirements for Army dogs in the Central Pacific Area were met entirely by a local program of dog procurement and training which was comparable to that established in the Zone of Interior.

The Army dog program in the Central Pacific Area (the successor command to the Hawaiian Department) was separate from that undertaken in the Zone of Interior and originated on 24 May 1942, with the approval by the Headquarters, Hawaiian Department, of a plan submitted by the department veterinarian (*116*, *117*). On 5 August 1942, the provisional Veterinary General Hospital, Fort Armstrong, established a dog training center on the premises of the Territorial Animal Quarantine Station; a subcenter was established, with the assistance of the district or service command veterinarian, on Maui about 5 months later. In December 1942, the local dog program had become a Quartermaster Corps responsibility; a Quartermaster Corps employed dog trainer (Mr. E. Humphreys, of Seeing Eye Dogs, Inc., Morristown, N.J.) and local dog owners added much to the early development and success of the program. Trained dogs were sent initially to Guadal-

canal, and within a year more than 400 dogs were deployed at depots, outpost positions, and vital civilian centers on all of the Hawaiian Islands as well as on Baker, Canton, Christmas, Midway, and Palmyra Islands; later, a few dogs were deployed to Guam, Saipan, and Okinawa. Altogether, the Army Veterinary Service conducted physical examinations on 3,259 dogs recruited from the civil population, of which number 815 were accepted for training and 344 completed their training.[16] The major causes for rejecting recruit dogs on preliminary physical examinations at assembly areas or procurement points included otitis media, mange, ringworm, current disability, dental irregularities, and abnormalities of conformation. Filariasis was diagnosed in 12 percent of the original 310 recruit dogs which were examined, but the disease did not constitute a cause for rejection except where the dog manifested clinical symptoms; filariasis was an indigenous disease. Dogs accepted for training were inoculated against canine distemper but not against rabies since the disease was not existent in the Hawaiian Islands. After April 1944, by amendment to the original quarantine laws and regulations of the Territory of Hawaii, the importation of all animals, except direct from the Zone of Interior, Australia, and New Zealand, was prohibited (*118*), but, by special waiver, many locally trained Army dogs which had seen service on the Pacific island bases were returned to the Hawaiian Islands.

South Pacific Area

In the South Pacific Area, a 120-animal Casual Dog Detachment—complete with its own veterinary detachment—was deployed on New Caledonia. During the 6 to 8 months following their arrival on 21 March 1943, the dogs were used at airfields and depot facilities; others were sent to Guadalcanal and Espíritu Santo where they were retained for only a brief period of time (*119*). By November 1943, the dogs were placed in a caretaking status, and, in late 1944, the detachment was disbanded. The principal causes of animal inefficiency included heat exhaustion, ancylostomiasis (hookworm infestation), and canine filariasis (*120*). The last-named disease appeared in a severe form, seemed to resist treatment, and was cause for the disposition of the dogs locally rather than returning them to the Zone of Interior.

China-Burma-India Theater

The War Dog Detachment, China-Burma-India theater, included a casual detachment of 100 dogs shipped from the Zone of Interior during the early months of 1944; another detachment with 25 replacement animals joined during the spring[17] of the next year (*80*, *121*). Stationed originally at

[16] The number of dogs volunteered by civilian owners totaled 7,359. More than 50 percent of the applications of volunteered dogs were rejected after a review showed the dog to be unsuitable in one way or another.

[17] The detachment departed, on 27 January 1944, from the San Francisco Port of Embarkation on the S.S. *Benjamin Ide Wheeler* and arrived on 6 April 1944, at Calcutta, India. En route, two dogs died.

Kanchrapara (near Calcutta), India, the detachment, however, was deployed for the greater part of the time in the Assam area (at Thanai, and later at Raidang). Groups of the dogs were deployed in the Burma campaigns with the 5307th Composite Regiment (or GALAHAD Force) and the 5332d Provisional Brigade (or MARS Force) and were used also by the Office of Strategic Services, in China. The principal activities of this unit's veterinary detachment was the selection of kennel areas and the arrangement for veterinary animal service for the various groups of dogs that were assigned to services of supply facilities and the combat forces throughout the theater. Diseases and injuries causing the most trouble, including the common parasitic infestations (such an ancylostomiasis and taeniasis), were *Lucilia macellaria* infestation of wounds, filariasis, and diseases of the skin (dermatitis and eczema); gastroenteric disturbances occurred with great regularity. The most serious contagions included the tick-transmitted babesiasis (or piroplasmosis) and a case of rabies in a dog, previously inoculated with a rabies vaccine of local manufacture, that may have been bitten by wild animal. During the period of operations in the theater, 369 cases of disease and injury were treated, of which number 45 dogs died or were destroyed, as shown in the following tabulation:

Average mean strength	76.9
Admissions:	
For disease	330
For injury	39
Total	369
Treatment ____days	3,804
Average days per admission	10
Died or destroyed	[1] 45
Number admitted per 1,000 average animal strength per year:	
For disease	2,610.4
For injury	311.7
Total	2,922.1
Number per 1,000 average animal strength per year died or destroyed	350.7

[1] The specific causes of the loss of 45 dogs included the following diseases and injuries: Encephalitis, 12; piroplasmosis, 8; unreported, 4; wounds, all kinds, 3; and filariasis, 3.

Other Commands

The Army Veterinary Service rendered professional and technical supervisory services for Army dogs in many other oversea commands and theaters. For example, there was the 228th Engineer Mine Detection Company (Dog), complete with its own organic veterinary detachment, which was deployed in the Mediterranean theater to test the efficacy of dogs in detecting land

mines.[18] Two clinical cases of rabies were reported in that company during the fall of 1944 (*122*). At about this time, six dog platoons came into the theater from the Zone of Interior (the 33d through the 38th Quartermaster War Dog Platoons, of which the 36th was specialized in mine detection).

A serious outbreak of taeniasis was reported among a group of 30 Army sled dogs during 1943, at Camp Prairie, Alberta, Canada (in the Northwest Service Command). This parasitism—attributed to the feeding of raw rabbit meat—was brought under control by removing rabbit meat from the dog diet and by the feeding of cooked meats (*45*).

In the Alaskan Department, Army dogs were maintained at a number of places, including the Aleutians. During the period from January 1943 through May 1944, the veterinary officer at Ladd Field, Alaska, aided in the care and management of 42 to 58 sled dogs, as follows:

Average mean strength	49.9
Admissions:	
For disease	38
For injury	28
Total	66
Treatment—days	555
Average days per admission	8
Died or destroyed	6
Number admitted per 1,000 average animal strength per year:	
For disease	540.0
For injury	400.0
Total	940.0
Number per 1,000 average animal strength per year died or destroyed	80.0

The United States Forces in Newfoundland received 35 Army dogs from the Zone of Interior during 1942, and the 3d Infantry Division at Harmon Field had 4 sled dogs as of September 1943 (*123*, *124*). There the dogs were vaccinated against canine distemper each year due to the constant presence of a highly virulent form of the disease among the civil dog population. At Sondre Strom Fjord, Greenland, another 125 military dogs were stationed, as of December 1943 (*125*). A program of vaccination against canine distemper was begun in Greenland during the fall of 1944 when an enzootic of that disease led to the loss of 53 dogs (*126*, *127*). Up to that time, canine distemper, as well as rabies, was reportedly nonexistent in Greenland.

A relatively large number of Army dogs were stationed throughout the Caribbean Defense Command. The Puerto Rican Department received 24 guard dogs from the Zone of Interior during November 1942 and used them

[18] The company was activated and organized during November 1943 at the Cat Island dog center; it was disbanded about 1 year later.

at Fort Buchanan and on Jamaica and Antigua (*128, 129*). The Panama Canal Department received dogs during December 1942 (*130, 131*) and lost 28 dogs on account of disease and injury, as shown in the following tabulation:

Average mean strength	59.0
Admissions:	
For disease	149
For injury	44
Total	193
Died or destroyed	28
Number admitted per 1,000 average animal strength per year:	
For disease	830.5
For injury	254.2
Total	1,084.7
Number per 1,000 average animal strength per year died or destroyed	152.5

Dog Disposition

The return of Army dogs from the oversea theaters and the disposition from Army dog centers of those found unsuitable or to be surplus to military needs were continuing problems. Disposition, normally, was made after the dog owner, who had originally volunteered the dog, advised the Army dog center of his desire concerning the return of the dog; if the dog owner did not desire the dog, the Army took the option of issuing the dog to a military organization as a mascot, giving it to a breeders' organization, or destroying it (*132*). Where the dog had been given to the Army (that is, not volunteered) or purchased, the disposition was made pursuant to that usually prescribed for Army horses and mules. The volunteered dogs were fully reconditioned, demilitarized, and examined for freeness from contagious or infectious disease. Emphasis was placed on releasing dogs in a state of well being possibly better than that observed at the time the animal was recruited. A high degree of importance was attached to precautions against the release of dogs harboring a disease that could be disseminated or introduced among the civilian dog population.

So far as the health status of the released dogs was concerned, no differentiation was made between the recruit dogs coming from Dogs for Defense, Inc., and the trained Army dogs which had seen active military service. Unfortunately, a large number of recruit dogs—many of the younger age group—found unacceptable upon arrival at the Army dog center were incubating or exposed to canine distemper; these were treated at Government expense and then sent back to the owner. On the other hand, of the 18,372 received at the Army dog centers, 1,500 recruit dogs were destroyed, with

the owner's consent, or had died on account of their physical health, including a great number of cases with filariasis and a few of mange.[19] Leptospirosis-infected dogs were destroyed, and the owners were so advised. These diseases, particularly filariasis, could not be kept out of the Army dog centers and, not being amenable to treatment, caused losses among Army dogs in active military service. They presented another problem when the Army, after December 1943, started to release volunteered dogs to civilian owners. Owners of dogs which were infected with filariasis were advised of the condition of their animals, the difficulty in a successful permanent treatment, the threat of recurrence, and the dangers of possibly spreading the disease to other dogs in the civilian community. Few dog owners desired the return of their dogs when so advised (*133*, *134*). Later, this disposition policy for filariasis-infected dogs was changed; after January 1944, all Army dog centers in the Zone of Interior were authorized to destroy filariasis-infected dogs whenever found (*135*).

Under existing Federal laws and regulations almost any dog—healthy or diseased—could be legally imported; however, the Army established effective controls against the return of Army dogs from the oversea commands, except those which qualified, after physical examination by Veterinary Corps officers, as being "* * * not infected with or carriers of a disease harmful to man or animal" (*136*, *137*). Mainly for these quoted reasons, the Army dogs used in scrub typhus areas in the Southwest Pacific Area and filariasis-infected dogs in the South Pacific Area were destroyed locally rather than returned to the Zone of Interior. In the winter of 1945–46, the Army required that war dogs be vaccinated against rabies prior to return to the Zone of Interior.

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CHAPTER XVIII

Army Signal Pigeons

The veterinary service for Army signal pigeons was an innovation of World War II, beginning in 1941 when a Veterinary Corps officer was assigned to the Fort Monmouth, N.J., pigeon-breeding and training center.[1] Signal pigeons for the Army were procured, bred, trained, and issued under the supervision of the Pigeon Service, an element of the Army's Signal Corps (*1, 2, 3*). These activities may be compared with those of the Quartermaster Corps Remount Service which was concerned with the supply of horses, mules, and dogs; they had their beginning in World War I when pigeons were authorized for use as a means of communication in the U.S. Army (*4*).

Seemingly, the earliest reference to any kind of veterinary service for pigeons in the Army concerned Medical Department supplies (*5*). During August 1922, the Veterinary Division, Surgeon General's Office, developed a list of equipment and certain medicines (including disinfectants) which could be used by Pigeon Service personnel to maintain loft sanitation and to control external parasites. Sodium fluoride was suggested for the control of pigeon lice. However, medicines for internal use or biologicals were unlisted for the expressed reason that "it is better to destroy a sick bird than to treat it unless a qualified veterinarian is available." Two years later, a veterinary officer, in an article on pigeons that appeared in the *Army Veterinary Bulletin*, suggested that the care and management of signal pigeons may "become another more or less important development of army veterinary activity" (*6*). This became true after 17 years when at least 17 Veterinary Corps officers could be identified with the Signal Corps pigeon organizations and units.

SIGNAL PIGEON PROCUREMENT

The beginning of World War II found the Army's pigeon center located at Fort Monmouth where it had been since 1919 when the latter—then named Camp Alfred Vail—began a program for developing the type of pigeon most suitable for military purposes (*7*). During 1942 this center, including its veterinary personnel which had just joined, moved to Camp Crowder, Mo., where it remained until after V–J Day when it was reestablished at Fort Monmouth. By this date, the Army Veterinary Service had become well established in the Signal Corps activities related to pigeons in the Zone of Interior (*8, 9*).

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[1] 1st Lt. (later Capt.) C. I. Angstrom, VC, was ordered into active military service on 24 April 1941, with initial station at Fort Monmouth. He was transferred with the pigeon center to Camp Crowder, Mo., during September of the following year. Another veterinary officer, 1st Lt. L. M. Greene, VC, joined on 5 November 1942.



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FIGURE 72.—Pigeoneers cooperating with Veterinary Corps officers to maintain healthy birds. The military utilization of pigeons depended on their health and freedom from disease. Birds were developed as "night fliers," also as two-way birds (that is, fly one way for water and return home for food).

Pigeons for the Army were procured by in-service breeding and the acceptance of voluntary donations (fig. 72). An estimated 40,000 pigeons were received from American pigeon breeders, fanciers, and owners during the war (*10*); in fact, an Army Pigeon Service Agency, with headquarters in Philadelphia, Pa., was organized and operated for this purpose (*11*). In the Central Pacific Area, where civilian owners experienced wartime shortages of feeding grains and were placed under restrictions relating to the ownership of pigeons in areas of military operations, hundreds of pigeons were obtained locally. Thousands of other pigeons were procured from British sources and later from a Belgian fanciers' organization. In the European theater large numbers of captured pigeons were used by Signal Corps units with the field armies; only a few Japanese Army pigeons were captured in the Pacific areas.

PIGEON CARE AND MANAGEMENT

During World War II, as the Army's pigeon strength rose to 54,000 birds (*10*), the objectives of the Army Veterinary Service concerned with signal pigeons became the protection of pigeon health, the preservation of their physical efficiency, and the safeguard against introducing or disseminating

pigeonborne diseases affecting other animals and the human being. These objectives were obtained by furnishing professional services and supervisory assistance in the care, feeding, housing, and transporting of pigeons; conducting laboratory diagnostic and investigative studies on pigeon diseases; establishing controls against the diseases of pigeons by prophylactic inoculations and quarantine procedures; inspecting and reporting on factors having a bearing on pigeon health; and giving technical assistance in the training of pigeoneers (pigeon handlers). Although 36,000 pigeons were deployed overseas, the foregoing veterinary services were not practiced uniformly in all of the theaters and oversea areas because of the newness in the concept of military veterinary medicine for the Army Pigeon Service. However, when practiced, the Army Veterinary Service contributed materially to the success of signal pigeon deployment.

Aside from the actual treatment of disabled pigeons, providing veterinary instructional services for pigeoneers who were in training was an effective means of introducing military veterinary medicine into the Army Pigeon Service. The 8- or 9-week mobilization training program that was used in the Army Service Forces Signal Corps training center at Camp Crowder included 25 hours of instruction on veterinary subjects (*12*, *13*). In an evaluation of the success of this instruction, it seems probable that the keen interest shown in scientific zootechnics and veterinary medicine was balanced by the layman's views or preconceptions on these matters by the pigeoneer trainees, most of whom were pigeon breeders or fanciers in civil life but had never been in contact with a veterinarian. Unfortunately, the veterinary instructional services were handicapped at the start due to the fact that the Army's training text—Technical Manual 11–410, dated 10 September 1940—was neither accurate nor up to date in its discussions on pigeon diseases and their control. Pigeon-pox vaccine, for example—discovered in the early thirties—was not mentioned, and neither was salmonellosis (or pigeon paratyphoid) which was the most devastating disease of signal pigeons during World War II. The situation was ameliorated by Veterinary Corps officers to the extent that lecture notes were prepared which were published by the Signal Corps at a later date (*14*, *15*), these then being incorporated into the 1 January 1945 revision of the Technical Manual, The Homing Pigeon.

The next event of importance in the advancement of veterinary service for Army signal pigeons came in the spring of 1942 when the field unit—the Signal Pigeon Company—was authorized its own organic veterinary detachment. However, the most effective means of insuring that good zootechnics was being practiced in these units—whether in the Zone of Interior or overseas—was the use of a system of veterinary inspection and reporting. Most frequently, these reports of inspections were rendered in letter form as a recurring monthly sanitary report (*16*), but others were submitted as inclosures to those report forms prescribed by the Army for pigeon company commanders. No veterinary reports on individual pigeons were maintained.



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FIGURE 73.—Maintaining pigeon efficiency by the use of clean and good-quality pigeon feed.

Although there were a number of factors of interest to the Army Veterinary Service bearing on the health of signal pigeons, the more common ones included their feed supply and housing. A balanced feed and good feeding practices were essential to the well being of the signal pigeons and had a direct bearing on their homing proficiency (fig. 73). The feed was procured in the Zone of Interior by the Signal Corps; unfortunately, large quantities of it, packed in burlap bags, were found deteriorated or unusable after arrival in the oversea theaters (*17*, *18*). The bags were torn by rough handling or were readily eaten into by rodents, and the grain contents became damp, moldy, or vermin infested. Certain grain components of the feed mixtures were damaged more often than others, but any large-scale salvage effort to remove the damaged grains could not be conducted without causing an imbalance of the feed's nutritive values. Pigeon feed which was fumigated and packed in hermetically sealed tin containers was suggested and arrived overseas during the late period of the war. The apparent successes of the 281st Signal Pigeon Company, at Fort George G. Meade, Md., in the treatment of sick pigeons by administering vitamins—suggestive of vitamin deficiency in the regular pigeon feed supply—led to authorization of quarterly Medical Department allowances of 45,000 multivitamin capsules for each pigeon company (*19*).



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FIGURE 74.—Pigeon lofts were specially designed in adaptation to the climatic environs in the Hawaiian Islands. The original loft with four sides closed, so commonly recommended for use in the United States, caused respiratory illnesses in the birds when they first arrived. Almost no respiratory diseases occurred after this new type of well-ventilated loft was put into use.

Proper housing for signal pigeons was a problem, particularly in the oversea theaters. Though mobile lofts of standard design accompanied the units arriving from the Zone of Interior, some were remodeled to meet the variable climatic conditions which were encountered in the Central Pacific Area (*20*), and open-front lofts were constructed (fig. 74). Emphasis was placed on having lofts which were exposed to sunlight, dry, and draft-free, and on keeping the lofts in a good state of sanitation. Usually, the loft facilities were adequate in capacity for the number of pigeons being used, although temporary shortages arose when breeding was undertaken. In an exceptional instance, the 277th Signal Pigeon Company, arriving at Périers, France (in the European theater), during August 1944, constructed open aviaries to augment its regular loft facilities. However, at the time of the seasonal rains, it experienced sickness in 2,500 of its 3,500 pigeons.

The diseases and injuries of signal pigeons were not recorded with the same degree of regularity as were those of Army horses and mules, and dogs. From the reports that could be studied, losses on account of disease and injury were about one-half less than the number of pigeons which were lost in training and operational flying. In the Zone of Interior, at Pope Field, N.C., the

1306th Signal Pigeon Company (Aviation), with an end-of-month strength averaging 3,317 pigeons during the period from April 1943 through August 1944, the veterinary losses were 922 pigeons, as contrasted with in-flight losses of 1,102 (*21*, *22*). In the same unit, but for the period from August 1943 through August 1944, the company veterinarian treated 4,036 cases, admitting 1,390 of these into the veterinary hospital loft where 738 pigeons died or were destroyed. It was apparent that the veterinary losses increased following the reception of replacement pigeons into these units. Wherever possible, particularly at the pigeon-breeding and replacement centers, and at the headquarters area of units and organizations, veterinary lofts and isolation (or quarantine) facilities were established.

The specific infectious diseases causing the most losses and inefficiency of signal pigeons during World War II were pigeon pox, salmonellosis, and trichomoniasis ("canker"). The first-named disease—encountered in all parts of the world—was readily controlled by prophylactic vaccinations of the pigeons each year.

Pigeon-pox vaccination programs were undertaken first by the Pigeon Service in some areas of the Zone of Interior in 1941 (*23*) and were developed later by the Army Veterinary Service in the Central Pacific Area and then in the European theater.

Trichomoniasis and salmonellosis, however, could not be as well controlled and thus, unlike pigeon pox, caused considerable inefficiency and direct loss of the affected pigeons. Trichomoniasis—a protozoan disease—was seen as a low-grade infection, mostly involving the squabs (or young pigeons), and, although amenable to treatment, the course of treatment, lasting up to 4 weeks, resulted in the loss of training time (*23*, *24*).

Salmonellosis—a bacterial infection—presented another kind of problem, frequently causing permanent disability (such as lameness and "wing droop"). It was the leading cause of pigeon mortality (including deaths and destructions to control the disease) in many units. For example, the 280th Signal Pigeon Company at Camp Claiborne, La., lost 200 pigeons in a 7-month period beginning December 1942 (*23*). Another 141 salmonellosis-infected pigeons were lost by the 1306th Signal Pigeon Company (Aviation) in the period from April through August 1944 (*22*). These losses were 40.2 percent of the total of 351 pigeons which had died or were destroyed because of diseases and injuries. This disease was investigated by veterinary laboratories of the Medical Department and by a few civilian agencies, including the American Salmonella Center, Lexington, Ky., with the view to identifying the salmonella organism, improving diagnostic methods, and possibly developing a protective vaccine. No real advances were made, however, and the controls against the disease included emphasis on loft sanitation and the removal of pigeons which showed clinical symptoms or seemed to be carriers of the disease (as might be indicated in a review of the breeding records). Salmonellosis in pigeons

gained some respect as a potential threat to troop health,[2] but no proved cases of the disease seemed to have been reported among Army pigeoneers during the war (*17*).

Other pigeon diseases included hexamitiasis—a protozoan disease—which was reported in 87 pigeons among a shipment received at Pope Field from Camp Crowder in early 1944 (*22*); a *Haemoproteus* infection, sometimes called pigeon malaria,[3] in the 279th Signal Combat Platoon while at station in the Hawaiian Islands (in the Central Pacific Area) (*24*); and an enzootic of toxoplasmosis in the Panama Canal Department that was investigated by the Gorgas Memorial Laboratory (*25*). Probably more important than these were the few diseases which could be carried by the pigeon to other animals or to troops. These were equine encephalomyelitis,[4] foot-and-mouth disease,[5] and ornithosis; however, there were no reports of the diseases being introduced or spread by Army signal pigeons during World War II.

OVERSEA DEPLOYMENT

For their deployment in the oversea theaters, Army signal pigeons were incorporated into a specialized unit—the Signal Pigeon Company. While such type units have been described in War Department tables of organization since 1918, it was not until after April 1942 that this field unit included personnel space authorizations for an organic veterinary detachment. The latter comprised a Veterinary Corps officer in the grade of 1st lieutenant or captain and one enlisted technician (*26* through *31*). The company unit could be subdivided into three combat platoons, each with 1,500 pigeons; in fact, a few separate platoons with attached veterinary personnel were deployed. Later, equipment tables were formulated for the pigeon company veterinary service, including a number of needed medicines and surgical instruments (*32*, *33*).

Approximately 12 pigeon units were activated during the war including the 829th Signal Pigeon Service Company, the 829th Signal Pigeon Replacement Company, and the 1306th and 1310th Signal Pigeon Companies (Aviation)—the latter being Army Air Forces units located at Pope Field, and at Baker Field, Calif. These, however, and another—the 283d Signal Pigeon Company—were not sent overseas. The following companies were deployed to the European theater: The 277th (originally designated the 1307th), the 278th (successor to the original 1308th), the 282d, the 284th (successor to the 1309th), the 285th (successor to the 1311th), and the 280th's 2d Platoon. The

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[2] In the instance of an endemic of diarrheal conditions occurring among pigeoneers in a company unit in the European theater, the company commander expressly asked his personnel to wash their hands after handling pigeons and before eating. Personnel assigned to permanent duty in the company kitchen included men who would not be in direct contact with pigeons.

[3] This should not be confused with the true malarial infection caused by *Plasmodium relictum*, also infectious to man.

[4] The pigeon is a known natural reservoir of the viral agent of equine encephalomyelitis.

[5] With respect to the carrier status of the pigeon for the viral agent of foot-and-mouth disease, the British Ministry of Agriculture and Fisheries made no restrictions against the incoming traffic of U.S. Army pigeons into the British Isles from the European Continent where the disease was enzootic.

280th Signal Pigeon Company was activated on 1 June 1941, originally as the 2d Pigeon Company, at Camp Claiborne; the unit, less its 2d Platoon which was sent during September 1942 to the European theater, was deployed into the China-Burma-India theater (in June 1944). The 279th Signal Pigeon Company (less its 3d Platoon) was deployed to the Central Pacific Area and then was reorganized during July 1944 as the 279th Signal Pigeon Combat Platoon; the 1st Combat Platoon component of the 281st Signal Pigeon Company was sent from station at Fort George G. Meade to the Southwest Pacific Area, and the parent company in the Zone of Interior was soon inactivated (during August 1944). Provisional pigeon organizations and detachments also were established, or were received from the Zone of Interior, in the Mediterranean theater (including the 209th Signal Pigeon Company and the Provisional 6681st Signal Corps Pigeon Company), on New Caledonia (in the South Pacific Area), at Ladd Field (in the Alaskan Department), and in the Caribbean Defense Command (including the original Panama Canal Department). The last-named group, however, had no attached veterinary personnel. Of these theaters, the Central Pacific Area and the European theater saw the greatest advances in the veterinary services for signal pigeons—handicapped only to a slight degree in that the pigeons of each company unit were widely scattered and the professional requirements were of a highly specialized nature.

Central Pacific Area

In the Central Pacific Area, veterinary service for signal pigeons began in July 1942, when component elements of the 279th Signal Pigeon Company, with 1,920 birds, arrived from the Zone of Interior (fig. 75) (*34*). A pigeon base and breeding center was established at Fort Shafter, T.H., wherefrom 27 tactical lofts were soon set up on all the Hawaiian Islands: 6 on Oahu, 10 on Hawaii, 5 on Kauai, 4 on Maui, and 1 each on Molokai and Lanai. Veterinary service was furnished by the Veterinary General Hospital, Fort Armstrong, Oahu, T.H., and by the district or service command veterinarians on the other island bases. During the fall of 1942, a vaccination program against pigeon pox was started—birds as young as 2 to 3 weeks of age were vaccinated, and all pigeons were vaccinated prior to their transshipment from the Hawaiian Island group (*18, 20*). Salmonellosis, originally referred to as "lameness" or "wing droop," occurred quite regularly and was controlled by the destruction of those pigeons showing clinical symptoms. The pigeon strength in the Central Pacific Area was 2,278 as of December 1942, and 3,426 as of December 1943. During the next year, the pigeon company was reorganized and redesignated as the 279th Signal Pigeon Combat Platoon, with 1,365 birds as of December 1944. Approximately 2,300 pigeons which were surplus to the new unit were shipped during September 1944 to the Southwest Pacific Area and the Zone of Interior. In December, the signal platoon was assigned to the Tenth U.S. Army and subsequently was deployed to Okinawa. Before the last move, a Veterinary Corps officer was assigned to this unit.



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FIGURE 75.—Lofts of the 279th Signal Pigeon Company were set up on all the islands of the Hawaiian group. District veterinarians on Hawaii, Maui, Molokai-Lanai, and Kauai rendered technical care and treatment. The base camp, located on Oahu, was visited daily by a veterinary officer from the Veterinary General Hospital. No serious communicable diseases ever appeared in any of the lofts.

The deployment of the 279th Signal Pigeon Combat Platoon to Okinawa brought into the Southwest Pacific Area the second such unit. The other was the 1st Combat Platoon, 281st Signal Pigeon Company, complete with its own veterinary detachment. This unit saw service in the Philippine operations.

European Theater

In the European theater, the beginning of Army Veterinary Service with signal pigeons began in the fall of 1942 with the arrival of the 2d Platoon, 280th Signal Pigeon Company, with 1,391 pigeons from the Zone of Interior (*35, 36, 37*). The latter's arrival brought two veterinary problems: First, 20 percent of the pigeons were sick with colds, "rattles," and lameness; and second, the British military medical services were questioning the likelihood of these pigeons having and introducing ornithosis into the United Kingdom (*38, 39, 40, 41*). With regard to ornithosis, the British services made reference to new reports of the discovery of ornithosis among the pigeon popula-



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FIGURE 76.—Examination and treatment of Army pigeons at the Signal Pigeon Center, Tidworth, England. This was a part of the European theater's veterinary program to obtain and maintain an efficient Army Pigeon Service in the armies and divisions in continental Europe.

tion in the United States and suggested that no medical problems would arise if the Army would obtain its pigeons locally. Veterinary quarantine procedures and research investigations by the British National Institute of Medical Research and the U.S. Army General Medical Laboratory A (predecessor to to the 1st Medical General Laboratory) failed to show ornithosis infection; later, the civilian pigeon population in the United Kingdom was found to be infected with the disease. In time, the 2d Platoon, 280th Signal Pigeon Company, established and maintained a pigeon-breeding and replacement center at Tidworth, Eng., as an element of the theater's services of supply organization (fig. 76). It furnished birds to the several pigeon companies which were deployed with the armies on the European Continent. Veterinary service was provided to the pigeon center by Veterinary Corps officers on a part-time duty status—a situation that was criticized by the tactical pigeon companies who, having full-time assigned veterinary personnel, at times received unsatisfac-

tory shipments of replacement birds (*42*). For example, a program of protective vaccination against pigeon pox—though considered first within the European theater during the summer of 1944—was originally limited to use only in the tactical pigeon companies in the instance of a threatening enzootic (*43*, *44*). In January 1945, however, the pigeon-breeding base in England began to vaccinate all replacement pigeons before shipment to the European Continent; during that month alone, 7,809 pigeons were vaccinated.

Following V–E Day, the tactical pigeon companies were required to turn in their pigeons to the 285th Signal Pigeon Company which released them to a British pigeon depot at Montoire-sur-le-loire, France; others were sent to the United Kingdom (*42*). As of June 1945, the pigeon-breeding and replacement center at Tidworth had 14,000 pigeons, these soon being released to the British (*45*). The forementioned company, departing during November and December 1945 from the European theater (via England), returned to the Zone of Interior with approximately 1,000 pigeons.

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CHAPTER XIX

Animal Farms, Captured Animals, and Privately Owned Animals

Though Army horses and mules, Army dogs, and signal pigeons comprised the main reasons for a veterinary service with animals in World War II, there were a number of other groups of animals which were provided professional care and treatment. Such animal groups presenting the more significant problems were livestock animals, captured animals, and troop mascots or pet animals belonging to military personnel.

ANIMAL FARMS

In World War II, the Army Veterinary Service provided professional services and supervised operations at a dozen or more livestock and poultry farms whose animal populations involved at least a thousand cattle and hogs and several thousand chickens. Though farms of various sorts have been operated since the earliest days of the Army, they were concerned mainly with the growing of vegetables or the harvesting of forage.

While there were a number of cogent reasons for their operation during World War II, the animal farms were more commonly used as a means of adding fresh foods to the rations in Army hospitals. At least two poultry farms were established for this reason alone, one on New Caledonia (in the South Pacific Area) (*1*) and the other at Townsville, Australia (in the Southwest Pacific Area) (*2*). The former, with as many as 2,800 birds as of December 1944 that were raised from chicks imported from Australia, lasted until September 1945. In the Zone of Interior, before the Army monetary system of food supply was replaced by the issue-in-kind ration, the output of such farms was planned by stations and units to build up so-called ration savings credits which could be diverted toward other purposes. Many such farms, having been operated throughout the preceding peacetime period by the Quartermaster Corps, Army Exchange System, or separate units,[1] were continued in World War II. The improvement of troop morale was another reason for their establishment or expanded operations, particularly in the oversea theaters where the farms provided a more varied diet of fresh meats and eggs. In the theaters, hog production was favored because, unlike cattle and poultry which required that supplements be imported into the

[1] Available records indicate that animal farms, before World War II, were operated at the following camps: Fort Bayard, N. Mex., Fort Belvoir, Va., Carlisle Barracks, Pa., Fort Bragg, N.C., Fort Clark, Tex., Fort Huachuca, Ariz., Fort Oglethorpe, Ga., Fort Reno, Okla., Fort Riley, Kans., Fort Robinson, Nebr., Front Royal, Va., Fort Leavenworth, Kans., and Jefferson Barracks, Mo. Probably there were others.



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FIGURE 77.—Army hog farm in Levant Service Command, U.S. Army Forces in the Middle East.

area, the hogs could be fed on the garbage from troop messhalls and could provide, at the same time, a means of disposing of edible garbage.[2] Damaged subsistence, as it became available, was added to this garbage. Damaged subsistence was used in the feeding of hogs on farms which were established in the Middle East theater (*3*) during 1943 at Decamere, Eritrea, and Tel Witwinsky, Palestine (figs. 77 and 78), and in the China-Burma-India theater (*4*) at Agra, Calcutta, and Ledo, India (figs. 79 and 80). In the latter theater, "enterprising veterinary officers operated poultry farms at a few stations, feeding the birds on grain, kitchen wastes, and spoiled canned milk, in an attempt to soften the leathery birds."

Although food production was the main objective of the Army's animal farms, the Army Air Forces at Mitchel Field, N.Y., found that animals could

[2] Ordinarily, Army hog farms were not established in oversea populous areas where the edible garbage found a ready market with the local civilian hog producers. Unfortunately, the Army was often embarrassed to the extent that such garbage was claimed to lessen hog raising, spread disease (notably hog cholera), and, at times, kill the hogs. The fact was that the civilian hog producers— then provided with large quantities of Army garbage— failed to balance or supplement the garbage feed with concentrates and were unequipped to process (or pasteurize) the Army garbage in compliance with local civilian laws and regulations. Such occurred in the European theater, the Southwest Pacific Area (in Australia), and in the Central Pacific Area (in the Territory of Hawaii). In the latter command, a veterinary officer could find no reason for the Army to expend money to collect and heat garbage at a central point before distribution to commercial hog producers and, at another time, joined in an investigation of a pending claim against the Army that eventually showed that Army garbage was not "poisoned" by contamination in an Army messhall but by a jealous neighboring producer whose source of supply was suddenly stopped when "his" Army units were moved elsewhere. So far as it was known, the edible garbage was made available without cost to the hog producers who could show need for it and could assure regular collections of such garbage from the messhalls; reasonable precautions were taken within the Army to insure its nonpoisonous character and edibility for hogs.



FIGURE 78.—Army hog farm at Decamere, Eritrea.

be beneficially used in rehabilitating hospital patients (*5*) and for that purpose procured a farm which was operated under the supervision of the airbase veterinarian (figs. 81 and 82). Other animal farms which were provided with veterinary services included those operated in the prisoner-of-war camps at Alva, Okla., and McLean, Tex.

A more patent reason was given for the establishment and operation of farms by Army task forces on two island bases in the Central Pacific Area (*6*). Vulnerable to isolation and starvation in the event of a Japanese naval blockade after the Pearl Harbor attack, the Christmas Island forces in February 1942 assumed control over a few cattle, hogs, and poultry which had been imported earlier by the U.S. Engineer Department at the start of construction on an airfield; later in that year, 150 hogs and 125 chickens were shipped from the Hawaiian Islands to the Army task force on Canton Island (fig. 83). With the westward retreat of the Japanese Navy, the task force farms lost their immediate military purpose, and the farm animals on Canton Island were disposed of by slaughter in June 1943. The larger and more diversified farm (including 27 dairy cows and 2 dairy bulls, 88 sows and 3 boars, and 375 poultry, as of December 1942) on Christmas Island was continued, however, until after V–J Day. The latter, under the control of a veterinary officer, provided a fresh milk, egg, and meat supply to the hospital as well as to the garrison's troop messhalls; during the period from November 1943 through September 1944, the farm's production had a monetary value of $14,700 (*6*). It may be noted that the original potential as "living food reserves" of these task force farms in the Pacific had gained military importance from the early reports that Army horses and mules and



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FIGURE 79.—Hogs maintained by the Army at the Ledo, India, farm being treated for screw-worm infestation.

locally procured carabao were the last sources of meat supplied to the defenders of the Philippine Islands before their surrender to the Japanese at Corregidor (in April 1942) (*7, 8, 9*). The veterinary officers included in these Philippine forces, subsequently as prisoners of war of the Japanese, were frequently detailed to stock farms at prison camps.

Whenever animal farms were operated, veterinary officers rendered the required professional services, supervised their sanitary aspects, and maintained regulatory controls against animal diseases. During World War II, these activities were greatly increased and usually included the actual operation of the animal farms where the veterinary officers were the only qualified personnel available. In this connection, the veterinary officers of Army Garrison Forces in the Central Pacific Area were called upon to attend the animal livestock farms which were established by the Navy's CA/MG (Civil Affairs/Military Government) units, following the invasion landings on Guam, Saipan, and Tinian (in the Mariana Islands). Similar assistance was



FIGURE 80.—Army hog farm at Ledo, India. SC IBT–45–11502



FIGURE 81.—Hospital patient working on the animal farm at Pawling Convalescent Center, N.Y.



FIGURE 82.—Diversified animal farm, Pawling Convalescent Center, N.Y. This farm was under the supervision of the veterinary officer, Mitchel Field, N.Y., specifically to aid in the recreational training and rehabilitation of hospital patients.

provided by the Army Veterinary Service in the South Atlantic theater at the joint Army-Navy hog and poultry farm which was maintained for about 2 years at Recife, Brazil; also, in Natal, Brazil, the U.S. Office of Inter-American Affairs called on a veterinary officer to assist Brazilian authorities on a hog production project (*10*). The added wartime responsibilities included that veterinary officers (1) survey the farm sites, (2) plan the farm construction and abattoirs, (3) recommend the kinds and breeds of livestock and poultry most practical to raise, (4) investigate the water and local food supply as to availability and adequacy, and (5) obtain such command support necessary to insure the maintenance of the farm on a high level of efficiency.

The professional problems centered on the control of animal diseases to insure farm animal efficiency and to protect troop health. These diseases included a peculiar type of respiratory disorder, observed in the chickens on New Caledonia, which was attributed to an imbalanced diet, and pig anemia, on the farm on Christmas Island. In the Marianas Islands and elsewhere, hogs were routinely immunized against hog cholera. Unfortunately, the establishment of adequate measures for the protection of troop health was more difficult. The fresh-milk production from some of the Army's dairy herds



FIGURE 83.—Army task force dairy herd, Christmas Island.

was unpasteurized or handled under elementary hygienic conditions (*11*), and the meat-producing animals were too often slaughtered in makeshift abattoirs. Some of the health dangers of the Army's fresh-milk production were reduced, with continued emphasis on farm sanitation and the examination of the dairy cows for freeness of disease. While a test and eradication program had been adopted against tuberculosis in Army cattle in 1929, a similar program against brucellosis (Malta fever) was not undertaken until a much later date. In fact, the unexpected finding of this disease in the dairy herd on Christmas Island—after 3½ years of virtual isolation and repeated examination—caused the immediate discontinuance of the local milk supply program and the subsequent closing of the farm.

CAPTURED ANIMALS

Except in the European theater, captured animals were an invaluable asset to the U.S. and Allied military forces. In the European theater, captured animals played an unimportant role (*21*). There may have been as many as 15,000 of them. A large number of these animals were used for pack transport purposes and a few for cavalry-type reconnaissance, in the campaigns against the Germans in Sicily and Italy and in the fighting against

the Japanese in Burma, the Philippine Islands, and Okinawa. At other times, captured animals were used in areas back of tactical divisions and field armies to haul supplies or to mount guard patrols in depots and prisoner-of-war compounds. The real value of captured animals in the motorized and mechanized Army that fought overseas in World War II, however, was not so much in their redeployment into military campaign as it was the more urgent need to return them to the civilian populations in liberated and occupied countries for the early reestablishment of local civilian economy and agricultural rehabilitation. During World War II, the animals were released not only at the cessation of active hostilities, but also during the war period, dependent on the tactical situation and the CA/MG programs in liberated and occupied countries.

Captured animals presented several veterinary problems. One of these comprised the safeguards—including animal quarantine procedures and the conduct of mallein test for glanders—to protect the health of Army horses and mules. Another veterinary problem concerned the protection of troop health through proper disposition of captured animals which might be affected with diseases transmissible to man. The Army Veterinary Service provided professional services and technical supervision over the care and management of captured animals while in military custody, and special precautions were suggested or adopted prior to their release or disposition to prevent the spread of animal diseases in a military command or among civilian livestock populations. The extent of these veterinary activities depended on the availability of Veterinary Corps officers and animal service units, the availability of veterinary equipment and supplies, and the planning on the military deployment or disposition of the animals.

European Theater

In the European theater, captured animals generally presented an intolerable veterinary situation. This did not improve until after V–E Day (*12, 13*). After the assault and landings on the European Continent in June 1944, the horses, cattle, and other animals which had fallen into the hands of the advancing divisions and armies were immediately released or "farmed out" to the local civilian populations by CA/MG detachments (*14, 15*). These animals were regarded or handled as liabilities to be disposed of at once, rather than as assets. There was no intention to fully determine whether they were infected with a serious contagious disease that could be disseminated among the civilian animal populations. The Seventh U.S. Army, coming into southern France from the Mediterranean theater and accompanied by a provisional remount depot organization (the 6835th) and the 17th Veterinary Evacuation Hospital, seemingly had sufficient personnel and equipment to partially process the captured animals before releasing them to the civilian populations, but, even in this army, an enzootic of sarcoptic mange occurred.

Elsewhere in the army combat areas, no precautions were taken against the collection and disposition of captured animals which might have been diseased. Aside from the shortages in the numbers of Veterinary Corps officers in such areas, little could have been accomplished anyway because, in the spring of 1944, there was a shortage of veterinary animal service equipment and supplies which was not relieved until the winter of 1944–45. In the interim, captured German Army animals, untested for glanders, were being used at a ground forces replacement depot and a prisoner-of-war inclosure in the Seine Base Section and the Brittany Base Section of the theater's communications zone (*16*). Subsequently, a minimal amount of animal service equipment and supplies which had come into the theater were used by veterinary personnel to provide first aid treatment and to examine these captured animals. During the spring of 1945, when it had become obvious that more animals would be captured and that some of these were being moved back from Germany into France, the theater veterinarian suggested that the captured animals should be taken care of by German Army veterinarians until the animals could be distributed by the CA/MG detachments and that such animals, if released or moved to France, should be examined by French civilian veterinarians. This pertained equally to horses as well as cattle, the latter already having been involved in the threatening spread of foot-and-mouth disease into the Lowland Countries (*17*, *18*). The suggestions which had been made to prevent the widespread dissemination of animal diseases in North Central Europe were answered by the Quartermaster Corps with the statement—approved by the theater G–5 (Civil Affairs/Military Government)—that no animals should be captured because of the feeding problem involved.

However, in October 1945, the theater quartermaster became responsible for the care, use, and disposition of 7,300 horses (*19*). At that time, a few were retained for the Special Services program of recreational riding, and, before the middle of 1946, 235 were shipped to the Zone of Interior; the others were disposed of by distribution to the Germans through the Office of Military Government for Germany.

Mediterranean Theater

Veterinary service for captured animals in the Mediterranean theater was first rendered during the summer months of 1943 in the 34th Infantry Division[3] in North Africa (*20*). During the next few years, thousands of such animals fell into the hands of the Allied military forces, many being actually used in the Seventh U.S. Army's campaigns on Sicily (during July and August 1943), and later by the Fifth U.S. Army in its northward advances against the Germans on the Italian peninsula. In fact, almost any

[3] At that time, the division veterinarian was caring for 116 captured animals; no communicable disease was reported.

kind of animal that could be found was used to transport supplies or to aid in reconnaissance during the Sicilian campaign. The same situation prevailed during the early months of fighting in the southern Apennines when the divisions of the Fifth U.S. Army formed and operated their own provisional pack trains. Few or no preliminary physical examinations were made at this time by the divisional veterinarians because animals were so urgently needed, many being killed by enemy artillery and mortar fire and snipers during their first pack trip to the outpost positions. By the spring and summer of 1944 when U.S.-supervised Italian Army pack mule trains replaced the provisional pack trains of the combat divisions and the military needs for animals were less urgent, the captured animals were assembled by CA/MG officers in the combat area, and those unusable for military purposes were distributed to the Italian civilian economy. The captured animal situation remained more or less unchanged from early 1944 until the spring of 1945.

Following the start of the Fifth U.S. Army's final offensive through Bologna which saw the capitulation of the German Armies in northern Italy on 2 May 1945, an estimated 5,000 German Army horses and a few mules were found in the Po Valley (*20*). These were brought into a main collection point at San Martino in Spino and gradually were taken over from the Fifth U.S. Army by the 2610th Quartermaster Remount Depot (Overhead) of the theater's Peninsular Base Section. The depot's veterinary personnel took care of as many animals as it could but for the most part operated only as a clearing station for evacuating sick and injured captured animals to four veterinary hospital organizations moved into the Po Valley. These hospitals, belonging to the Peninsular Base Section, were the 2604th Veterinary Station Hospital (Overhead) and the Italian 1st Veterinary Station Hospital, arriving at San Martino in Spino on 3 May 1945 (fig. 84). Several miles distant, and supporting these hospitals, were the 2605th Veterinary General Hospital (Overhead) and the Italian 2d Veterinary General Hospital—both setting up operations at Mirandola at about the same time. The movements of these hospitals and the evacuation of the disabled animals were accomplished by the 643d and 644th Veterinary Evacuation Detachments. During the month of May, which saw these hospitals and units in actual use for the first time since their organization in March 1945, they provided veterinary hospital support for the remount operations at San Martino in Spino, totaling more than 500 stable patients (table 58). The condition of the captured animals revealed the swift and chaotic retreat of the German forces just before their surrender; the horseshoes were worn paper thin or were missing from one or more of the feet. While some of them were sick—a few having epizootic lymphangitis—the most serious disability in these horses was burns (figs. 85 and 86). Whether the burns were caused by Allied artillery fire and aerial bombing or by the Germans setting fire to their abandoned material was undetermined.



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FIGURE 84.—Examination of a captured animal (identified by the "CA" brand) at the loading point of the U.S.-equipped Italian 2604th Veterinary Station Hospital, San Martino in Spino, Italy, on 10 May 1945.

TABLE 58.—*Sick and wounded animals cared for by the 2604th Veterinary Station Hospital and the 2605th Veterinary General Hospital, May 1945*

Hospital	Admissions			Died or destroyed [1]	Treatment days
	Total	Disease	Injury		
2604th Veterinary Station Hospital (Overhead)	218	46	[2] 173	5	1,340
2605th Veterinary General Hospital (Overhead)	288	101	[3] 187	3	4,172

[1] The specific causes of the loss of 8 animals included the following diseases and injuries: Fractures, 3; and 1 each on account of cataract, equine influenza, separation of sole, synovitis, and torsion of colon.

[2] Includes 25 battle casualties.

[3] Includes 11 battle casualties.

The captured animals at San Martino in Spino were not kept for any great period of time because the area was the assigned responsibility of the British military forces; in mid-May 1945, the veterinary hospitals were withdrawn southward, the U.S. organizations then being disbanded and the Italian hospitals being released to the Italian Government.



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FIGURE 85.—Extensive second-degree burns on a captured German horse.

China-Burma-India Theater

In the various areas of the Asiatic-Pacific theater, captured Japanese animals were used by the ground forces or found their way into the civilian economy in a manner somewhat comparable to the methods employed in the European and Mediterranean theaters (*4*). In the China-Burma-India theater, where animals were urgently needed by the U.S.-sponsored Chinese military forces, captured animals often constituted a major replacement supply to the combat teams fighting in the Burmese jungles (p. 363).

The main objection against the use and mingling of captured Japanese animals in the U.S. combat teams (Merrill's Marauders and the MARS Brigade) and the Allied Chinese military forces was the constant threat of surra.

Southwest Pacific Area

Surra, the disease that was most feared in the Burma campaigns and which eventually took its toll among the animals in the China-Burma-India theater, was discovered in the captured animals that made up the provisional pack train of the 33d Infantry Division while operating near Baguio, Luzon, in the summer of 1945. Over a period of 2 months, that divisional train's animal strength was reduced by 50 percent, largely on account of a test and



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FIGURE 86.—Second-degree burns of the back, loin, and croup regions. This horse was one of 7,000 animals captured in the Po Valley.

eradication program against surra—the program being undertaken by a veterinary officer of the XI Corps in cooperation with a medical laboratory unit (*21*).

Central Pacific Area

Few Japanese horses were captured on the island bases in the Central Pacific Area until after the Tenth U.S. Army's invasion of the Ryukyu Islands (*6*). On Angaur (in the Carolines) three were found, and two were found on Saipan (in the Marianas), but, in the Ryukyus, more than a thousand had been captured on Okinawa by 1 June 1945, and another 375 horses were taken on Ie Shima. With the exception of a few furnished to the U.S. Marine Corps to mount an ammunition pack train on Okinawa, these horses were controlled by the CA/MG officers who then "farmed out" as many as were needed in the recovery of the local agricultural economy. Veterinary officers provided the required professional care over the captured animals and took the necessary precautions against the issue of horses which were in poor physical condition or had contagious diseases.

Another group of animals coming into the category of "captured" was the livestock totaling 2,400 cattle and carabao, 700 goats, 1,100 hogs, and 3,600 poultry found in the Marianas Islands bases captured or retaken from

the Japanese. Presumably, many belonged to the native inhabitants, but others had belonged to the Japanese. They were assembled by CA/MG sections and were cared for by the veterinary officers accompanying the Army garrison force for each such base. It made little difference that the CA/MG on an island was a Navy responsibility and was Navy controlled, except that the medical sections of the Army garrison forces could not justify the release of their veterinary officers (usually one to an island base) when Navy CA/MG suddenly and unexpectedly needed them.

PRIVATELY OWNED ANIMALS

Private mounts of officers were given the same protective care and professional treatment as provided for Army horses and mules. However, a more controversial group of privately owned animals which was provided professional services in the Army included the dogs, cats, and other pet animals or troop mascots belonging to military personnel and organizations. These were controversial to the extent that, from time to time, a few individual veterinary practitioners in civilian communities surrounding the Army camps posed a question of infringement of rights or of unfair competition on the part of Veterinary Corps officers who were practicing veterinary medicine on these animals. There can be no doubt that these professional activities accrued great benefits to the Armed Forces, involving such matters as upholding troop morale, maintaining medical intelligence on the disease conditions of such animals as might have a bearing on troop health, and, of course, offering professional experience and continuing interest in veterinary medicine which related to animals of the kinds not used by the Army.

These treatment services, important as they may have been to the individual owners and military organizations, however, remained secondary to the phase of Army Veterinary Service with privately owned animals that was concerned with the regulatory controls over the traffic of such dogs, cats, and other pet animals between the Army camps. These controls meant that veterinary officers conducted physical examinations on the animals prior to their transshipment and rendered veterinary health certificates such as were officially made whenever Army horses and mules were issued, transferred, or sold; upon arrival at their destination in another Army camp, the privately owned animals were kept under a certain degree of veterinary observation or in quarantine until found to be free of contagious disease.[4] After 1928 these regulatory controls were advanced by the obligatory program of immunizing dogs, cats, and similar animals against rabies at many Army camps

[4] At most Army camps, the provost marshal was responsible for maintaining the records on privately owned animals which were kept or housed there. Newly arrived personnel were required to register their dogs with the provost marshal following their preliminary examination and "clearance" by the station veterinarian. The program of vaccinating dogs and cats against rabies, repeated each year, frequently became the basis for the owners to renew the registrations of their animals with the provost marshal. Unregistered animals and strays were collected and impounded by the provost marshal, who was also authorized to dispose of them.



FIGURE 87.—Antirabies vaccination, Chatham Army Air Force Field.

(fig. 87). In this manner, the Army accomplished more than any statutory-constituted civil authority to prevent the introduction or dissemination of animal disease by dogs and cats which were moved intrastate or interstate, or imported into the United States. Eventually, in 1946, the U.S. Public Health Service was granted congressional authorization to regulate the importation of any or all dogs and cats, military and civilian alike.

Before World War II, the nominal number of animals which were brought into the United States by military personnel was well regulated by the Army. The only Federal or civilian regulatory controls over such traffic were maintained by the Bureau of Customs, U.S. Department of the Treasury, and, in the instance of parrots or psittacine birds, by the U.S. Public Health Service since 1930.

The onset of World War II almost brought a halt to this animal traffic as increasingly larger numbers of Army troops were shipped from and not into the United States. This decreased incoming traffic, which had come about more or less by natural means and lasted only for the active war period, was further reduced in January 1944 when the Transportation Corps regulations of the Army (*22*) were amended to provide that "the carrying of pets or mascots on U.S. Army transports and vessels wholly allo-

cated to the War Department is not permissible." In the interim, however, when the incoming ship traffic of animal pets, especially on troop transports, had come to a halt, the wartime expansion of the Army Air Forces led to increasingly large numbers of these animals being brought into the United States by airplane. Aircraft-ferrying crews and the combat pilots on rotation further complicated the problem by entering the United States at airbases not normally under any kind of Federal or medical surveillance. In the spring of 1944, the War Department directed that animals were not to be carried on Army airplanes and ships unless a prior permit was secured from the U.S. Department of Agriculture and requested airplane and ship commanders as well as all Army personnel to cooperate with that department's inspectors at ports and airfields (*23, 24*). There can be no doubt that this announcement may have lessened the military traffic of pet animals into the United States, but, actually, the U.S. Department of Agriculture was without statutory authorization to prevent these importations[5] and neither was there a military veterinary record to indicate that the U.S. Department of Agriculture personnel conducted such inspections or impounded pet animals belonging to military personnel. In the European theater, the Army Veterinary Service inquired as to how military personnel could obtain the required permit from the U.S. Department of Agriculture before departing for the United States (*25*).

These regulatory directives of the War Department were augmented by the regulatory controls established and operated in the oversea theaters during the active war period. The European theater, for example, provided for the movement of pet animals to the United States to the extent only that such would be made in compliance with the existent directives (*26, 27*). This meant that dogs, cats, and pet animals could be transported to the Zone of Interior if the individual owners could or should make their own arrangements with any commercial transportation agencies which might be operating between Europe and the United States; of course, few such arrangements could be made during the period of active hostilities. The same was true for the Central Pacific Area, but no veterinary health certificates were issued for dogs or cats which may have been at one time or another on any island base outside of the Hawaiian Islands (*6*). Elsewhere, the theaters imposed greater restrictions. During May 1943, the Southwest Pacific Area expressly prohibited the shipment of animals into the United States (*28*).

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[5] Though the U.S. Department of Agriculture, chiefly through its Bureau of Animal Industry, was the Federal agency statutorily responsible to prevent the spread or introduction of animal disease across State boundary lines and into the United States, its control over the traffic of animals was limited by the legal definition of "domestic animal"—the latter not including dogs or cats, which are regarded as chattel. This legal definition with the exclusion of dogs as animals was only gradually applied because the Bureau of Animal Industry Regulations of 1918 and 1919 provided that all dogs coming into the United States would be inspected, especially the collie, shepherd, and sheep dogs which could be quarantined against tapeworm infestation (*Taenia coenurus*). Then, the Bureau of Animal Industry Regulations of 1927 referred only to the inspection of imported collie, shepherd, or other dogs which were to be used in handling sheep or other livestock.

Following the cessation of active hostilities, the return of the millions of troops which had been deployed overseas to win the Allied victories over Germany, Italy, and Japan was accompanied by the threat of the greatest mass importation of dogs, cats, and troop mascots in the history of the United States. The existent safeguards, against the chance introduction of new diseases or augmentation to those diseases already prevalent, were seriously reviewed by Medical Department officers. They described the subject as important not only as it concerned the safeguarding of the Nation's livestock but the protection of its civilian health as well. By October 1945, the European theater already had completed arrangements for transporting any number of dogs, cats, and other animals,[6] at owners' expense, on commercial transportation facilities (*29*, *30*, *31*, *32*). As though this was not sufficiently disconcerting, the Veterinary Division, Surgeon General's Office, which had assumed to at least maintain a respectable safeguard against animal diseases coming into the United States, soon found that the Transportation Corps was negotiating with the War Shipping Administration to move animals from areas, particularly those far removed from normal trade routes or shipping lanes, wherein commercial shipping had not, or would not, become available (*33*). At that moment, the Surgeon General's Office appealed to the U.S. Public Health Service to review its statutory authorizations and regulatory provisions which might be used to stop or control such importations as would affect the Nation's health, but no assistance was forthcoming at that time (*34*). An obvious reason for referring the request to the U.S. Public Health Service was that the two, since mid-1943, had been meeting in conference of an Interdepartmental Quarantine Commission which sought to formulate a coordinated civil and military control over military traffic.[7] The U.S. Department of Agriculture had refused to participate during the constructive days of that Commission, when the subject matter under conference study evolved about the aerial traffic of internationally recognized diseases of the human being.

During February 1946, the Surgeon General's Office entered into discussions against renewed proposals by the Transportation Corps to utilize War Shipping Administration vessels to bring out (or import) the pet animals owned by troops located in those certain areas, particularly in the Asiatic-Pacific theaters, that would be outside of postwar commercial ship traffic (*35*). Acquainted with the genuine lack of congressional authorization in any or all recognized Federal civilian health and disease-control agencies to protect the Nation against such animal importations, the Surgeon General's Office could

[6] An estimate was made that 1 percent of the troops returning to the United States would want to import dogs from the European theater.

[7] The Interdepartmental Quarantine Commission was formed following an agreement reached between the Federal Security Agency, including the U.S. Public Health Service, and a number of Federal and military agencies, including the War Department. In July 1943, a medical officer was designated as War Department representative to the Commission—being designated as Army Quarantine Liaison Officer. The latter subsequently established operations within the Surgeon General's Office. In the fall of 1944, the Bureau of Animal Industry, U.S. Department of Agriculture, was especially advised of this action in the Surgeon General's Office, but, seemingly, there was no further intercommunication until February 1946.

not believe that the Army should encourage animal traffic into the United States from areas from which few or any animals had been imported in the past and that "in the interests of public health and animal disease control, * * * importation should be discouraged, particularly as far as the introduction of pets from the Orient is concerned, where diseases are more rampant, and methods of control are practically nil" (*36*). Against these veterinary arguments, the Transportation Corps proposal had the singular advantage that services and facilities would be equal for all Army troops, whether they were located in the European theater or were isolated on some island base in the Pacific.

The two aspects of the problem were compromised on 20 March 1946, when the War Department removed the wartime prohibitions against the transportation of dogs, cats, and other animal pets on Army ships and imposed new requirements for these animals, when coming into the United States, to be previously immunized against rabies and to be physically examined and certified to be free of any demonstrable diseases as might be evidenced by the skin, jaundice, emaciation, diarrhea, or symptoms involving the nervous system (*37* through *41*). These Army veterinary sanitary requirements were favorably agreed to by the Deputy Chief of Staff, Army Service Forces, but not without questioning the moral justification of the Army as an agency of Government to impose regulatory controls on soldier-owners of pet animals when such were not legislatively imposed on civilians; also, a question arose over the continued need for the Army to assume civil or Federal regulatory functions in the Zone of Interior (*42*).

In fact, the Army had demonstrated its willingness to cooperate with the Bureau of Animal Industry, U.S. Department of Agriculture; the Fish and Wildlife Service, U.S. Department of the Interior, and the U.S. Public Health Service, Federal Security Agency. However, when advised in February 1946 of the Army's intent to lift its stringent impositions against the traffic of dogs, cats, and other privately owned animals, only the U.S. Public Health Service was sufficiently interested or able to give promise of action for civilian regulatory control over their importation (*43*, *44*, *45*). Within a short period of time, the U.S. Public Health Service developed a regulatory order—in cooperation with the Surgeon General's Office as well as with representatives of Army Air Forces, the Navy, and other agencies—which was subsequently (on 29 May 1946) entered into Federal law (*46*, *47*, *48*). There remains no doubt that the Army Veterinary Service alone in the immediate postwar period had successfully intervened against the threatened introduction of additional or new animal diseases into the United States by the hundreds of privately owned animals belonging to military personnel who were returning from the oversea theaters. To date, despite the confusing multidivision of the Federal civil controls against importations that ordinarily precede and comprise the legal basis of most military quarantine processes in the Zone of Interior, the record is clear of any blame on the Army that its animal pets

and troop mascots constituted a source of animal disease spread to the Nation's civilian and animal populations; more significant, however, the fact remains that the Nation's health and livestock were protected.

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CHAPTER XX

Military Meat and Dairy Hygiene

Military meat and dairy hygiene was the defined responsibility of the Army Veterinary Service and was conducted at a professional level, paralleling the care and treatment of Army animals (*1, 2, 3*). In World War I, an estimated 20 percent of the veterinary personnel were utilized as inspectors of the Army's subsistence supply, but in World War II, 90 to 95 percent were so utilized. During the period from 1940 through 1945, these personnel conducted a meat and dairy products inspection service aggregating more than 142 billion pounds. The expensiveness of veterinary food inspection during a single war year was described by a veterinary officer representative of the Surgeon General's Office as follows (*4*):

> The Army spent over two and one-quarter billion dollars for food during the past year. About 38 percent of the soldier's ration consists of meat, meat-food and dairy products. These items represent approximately 60 percent of the cost of the ration. Of all the foods consumed by the soldier, meat, meat-food and dairy products are the most dangerous to his health when contaminated or spoiled. It is for this reason that the Army maintains the strictest possible supervision over these products from the time of preparation and purchase to and including the issue to troop messes. At the present [November 1944] the Veterinary Corps is inspecting over one-half billion pounds of foods of animal origin per month. Each day it requires about 19 thousand cattle, 27 thousand hogs, 600 calves and 5 thousand sheep and lambs to supply the Armed Forces of the United States with meat and meat products. During the year 1943 rejections prior to purchase ran 5.1 percent. The estimated equivalent monetary saving represented by the difference in value of items offered for delivery and those accepted following Veterinary Corps inspection is a very substantial figure. In this connection, it is desired to point out that the estimated equivalent monetary saving for the year 1943 exceeded the total pay of all Veterinary Corps officers and all veterinary service enlisted men on duty in the entire Army for that year.

In connection with these monetary savings, it may be mentioned that for the war period this amount was set at $88 million,[1] covering more than the 1¼ billion pounds of meat and dairy products which were rejected at the time of procurement (*5*). Another 100 million pounds of Government-owned foods were rejected from issue to troop messhalls, but no monetary estimate can be made of the expected costs for hospitalization, inefficiency, and other military factors, had even only a small fraction of such foods been consumed and the troops made ill.

The veterinary meat and dairy hygiene operations were twofold in nature and operated: (1) To protect the health of troops endangered by foods which

[1] The estimate was determined by allowing 4 cents per pound for any or all products rejected for failure to meet grade quality as required in contractual documents and allowing the full value on products which were rejected from procurement on account of insanitary condition or unsoundness.

might be spoiled, damaged, contaminated, or otherwise unsafe and unsound for eating, and (2) in conjunction with Quartermaster Corps procurement officers to protect the financial interests of the Government by inspecting products to determine compliance with contractual requirements governing their quality and manufacture. Actually, this veterinary food inspection service was essentially sanitary in its nature. Its purpose was to protect the health of troops by preventing the procurement and issue of meat and dairy products which, by reason of their origin, nature, handling, or condition, would be unsafe or unsuitable. The animals, from which products of animal origin were obtained, were subject to many diseases directly transmissible to man, such as tuberculosis, trichinosis, Malta fever, anthrax, milk sickness, actinomycosis, taeniasis, foot-and-mouth disease, and glanders. The food products might also become contaminated during preparation and might carry such diseases as typhoid fever, septic sore throat, Weil's disease, dysentery, scarlet fever, and diphtheria. They might also become contaminated either by the action of the bacteria present, such as *Salmonella* species, or by toxins produced by certain bacteria, such as the staphylococci and *Clostridium botulinum*. As a sanitary and preventive medicine procedure, the veterinary inspection of the Army's subsistence supply was an extension of the troop health programs maintained by the Medical Department.

The Army Veterinary Service cooperated closely with purchasing and issuing officers in assuring that the subsistence supplies they handled would comply with the requirements under which the products were procured or issued. Similarly, the Army Veterinary Service cooperated with the Transportation Corps whose officers moved the subsistence by railroad in the Zone of Interior to the ports of embarkation from whence the Army food supply chain reached into the oversea theaters. Both the Quartermaster Corps and the Transportation Corps necessarily depended on the professional and expert advice of Veterinary Corps officers who made the inspections, and, of course, the full cooperation of all concerned was needed and exercised with the view to adequately protect the Army's health and the financial interests of the Government. A special feature of veterinary inspections for quartermaster purchasing officers was the examination of products for grade quality, as well as the conducting of tests and inspections for count or weight, packaging and packing, labeling and marking, and for any other requirement set forth in the pertinent contractual documents. Usually, these examinations and the professional sanitary inspections were conducted in the same veterinary inspection procedure, but the sanitary inspections were regarded as being more comprehensive and were repeated along the entire chain of supply from procurement points to the final point of issue. Therefore, sanitary inspections were made of the products when purchased, while in storage, and when shipped or sold. Summarizing, military meat and dairy hygiene inspections constituted an official inspection and examination of foods, before or at the time of their acceptance by the Army and subsequent to procurement until

issued or otherwise disposed of, to insure their military, sanitary, grade, and other quality features but not to exclude their nutritive values which paralleled grade quality.

CLASSIFICATION OF VETERINARY PRODUCTS AND ESTABLISHMENT INSPECTIONS

Military meat and dairy hygiene included inspections of the live animals which were procured for food, dressed carcasses, and items such as meats and meat foods; poultry and poultry products; eggs; game; milk, butter, cheese, and other dairy products; fish, oysters, and other seafoods; lard, lard substitutes, and edible oils; assembled rations; and other subsistence in which foods of animal origin formed a considerable part, whether these were fresh, frozen, cured, canned, or otherwise processed. Also, it included the sanitary supervision of the sources of such food products, as well as the facilities and condition of the food establishments, storage places, and carriers by air, rail, or water in which the products were processed, manufactured, stored, transported, or otherwise handled. The facilities for processing and the procedures of operation in establishments, storage places, and transport facilities which were concerned in the supply and distribution of meat and dairy products to the Army were matters of careful sanitary survey, as were the dairy herds and pasteurizing plants which supplied milk to the Army (fig. 88).

The veterinary inspection procedures applicable to meat and dairy products were considered under three headings: (1) Ante mortem and post mortem inspections; (2) inspections incident to procurement which were made to determine the quality, including type, class, and grade, the measurement, and the sanitary condition of products; and (3) continuing inspections or surveillance over the Army food supplies from procurement points up to the place of issue to troop messhalls. Information concerning the condition of subsistence supplies was obtained by conducting several classes of inspections:

Class 1. Ante mortem inspection
Class 2. Post mortem inspection
Procurement Inspection:
Class 3. Inspection prior to purchase
Class 4. Inspection at time of delivery on receipt
Surveillance Inspection (of Government-owned subsistence):
Class 5. Inspection of any receipt except purchase
Class 6. Inspection prior to shipment
Class 7. Inspection at issue or sale
Class 9. Inspection in storage

Another class of inspection, not listed here, was class 8, or the inspection of purchases made by the Army Exchange Service, but this class is generally excluded from the regular discussions because the products technically were not a part of Army supply. Also, it must be noted that before 1943, the class 9 inspection procedure was not conducted separately but was integrated



FIGURE 88.—Veterinary Corps officer conducting routine sanitary inspection of milk pasteurizing plant.

with surveillance inspections conducted before shipment; these two procedures were conducted and reported under the single heading of class 6, then named "inspection in storage."

Commercial Food Establishments

The preceding classification of inspection procedures, for the most part, referred to the inspection of products. However, conducted simultaneously with, and as a component procedure of, these class products inspections, there was the veterinary sanitary inspection of establishments. The term "establishments" included dairy farms, animal slaughtering plants, packing houses, cold storage plants, butcher shops, markets, warehouses, milk plants, ice cream plants, sales commissaries, railroad cars, trucks, ships, aircraft, and any other establishment or conveyance in which meat and dairy products were processed, manufactured, assembled, stored, transported, or otherwise handled, either commercially under contractual agreement or by the Army. The veterinary inspections of establishments routinely consisted of the sanitary investigation of the following matters:

Premises
Receiving facilities
Interior construction of buildings
Ventilation
Lighting
Water supply, ice, plumbing
Equipment and utensils
Cleanliness and disinfection
Contamination by rejected products
Disposal of byproducts
Dressing rooms and toilets
Employees
Vermin
Refrigeration
Handling, packing, and transporting
Storage and issue rooms
Other sanitary inspection agencies

The inspection procedures for commercial establishments were closely related to veterinary food procurement inspections, whereas those for Army establishments were more directly concerned with veterinary surveillance inspections.

Pursuant to the procedures of Army subsistence procurement, the awarding of contracts was limited to the commercial food establishments which had passed an Army veterinary sanitary inspection. The inspection usually was made within the calendar month preceding the opening date of bids. (Of course, establishments operating under the supervision of approved sanitary inspection agencies were regarded as Veterinary Corps approved sources.) Special administrative procedures were set up during the war for owners of commercial food establishments to forward requests for veterinary sanitary inspections of their plants, through a quartermaster purchasing office, to the commanding general of a service command, who then indorsed these requests to Veterinary Corps officers located nearest the plants. These officers, after their inspections, recommended the acceptance or rejection of the establishments to the service command headquarters which made the final decision as to listing the establishments as approved sources of supply; the purchasing officer was then advised of the final decision. This comprised the so-called initial inspection of commercial food establishments. At least once each month thereafter, the establishments were reinspected as long as they were producing under an Army contract or the owners manifested an interest in gaining the award of Army contracts. During 1944, approximately 4,000 commercial food establishments were being regularly inspected each month, exclusive of those operating under the supervision of a recognized civilian inspection agency. When the owners of approved establishments failed to maintain satisfactory levels of sanitation or did not properly correct defective operations or facilities, the inspecting veterinary officers recommended, to the concerned service command headquarters, the withdrawal of the establishments from the current list of approved sources of supply. As of June 1945, the establishments disapproved for use of the Army, because of insanitary conditions, for procuring fresh meats and dairy products totaled more than 1,100 in the United States (*6*). The lists of approved and of disapproved commercial food establishments were circularized between service commands and were forwarded to quartermaster contracting officers for their guidance. These veterinary sanitary inspections were di-

rected only at the sanitary features of food manufacture, storage, and handling and were unrelated to veterinary surveys to determine the operating potential of establishments or to the blacklisting of establishments for legal reasons.

These inspections of plants and establishments were not simple procedures and were not conducted without regard to the fact that there were a variety of other inspection agencies, including the Bureau of Animal Industry of the U.S. Department of Agriculture, the U.S. Public Health Service and the Federal Food and Drug Administration of the Federal Security Agency, and the various State, county, and city public health and agricultural authorities. However, there was not one single agency among the foregoing that performed the necessary sanitary inspections of all types of food establishments which were in the Army supply program. All were primarily engaged in the surveillance of compliances with the pertinent Federal, State, or municipal food laws and regulations under which the agencies operated; furthermore, below the level of Federal regulating controls, there were as many sanitary laws and law enforcement agencies as there were States and municipalities. None, for example, would have protected the Army's total milk supply in regard to the requirements for pasteurized milk. There were several nationally organized food industries which set up sanitary standards, but, unfortunately, these were not fully policed. It would not be fair to state that the civilian food industry's standards were not used, because some were, but the Army Veterinary Service made no agreement or other action of acceptance that could have been interpreted as formal Army approval of them.

Separate doctrines for Veterinary Corps sanitary inspections were developed, dependent upon the particular products that were being manufactured and upon the nature of the procedure involved, whether it be processing, assembling, storing, or shipping. Thus, meat plants operating under the supervision of the Bureau of Animal Industry were regularly accepted as satisfying sanitary standards of the Army, and the same was true for such of the canned oysters and shrimp plants which operated under continuous supervision of the Seafood Inspection Service, Federal Food and Drug Administration. However, milk plants, ice cream plants, and fish plants, although operating under sanitary regulations of State and local inspection agencies, were routinely inspected by the Army Veterinary Service because many laws and regulations were inadequate or were improperly enforced, even in peacetime when no real shortage of manpower existed. Some of these regulatory agencies were agricultural in nature and had no responsibility in regard to the health of the consumer public. Creameries (butter plants), cheese factories, and milk canning plants likewise were inspected for sanitation by the Army Veterinary Service before and after contracts were awarded, and the same was true for ration assembly plants, dry storage warehouses



FIGURE 89.—Veterinary Corps officers at Perth, Australia, inspecting procurements of dehydrated vegetables made by the U.S. Navy.

and cold storage plants, and the railroad cars, trucks, ships, and other conveyances which were used to transport subsistence for the Army.

Foods of Nonanimal Origin

The Army Veterinary Service was concerned principally with foods of animal origin, or meat and dairy products, and their sources of supply. However, during the war, large quantities of fruits, vegetables, cereals, and a variety of food products other than those of animal origin were inspected (fig. 89). The wartime inspections of the Army supply of fruits, vegetables, and like subsistence items were limited generally to places where no sanitary inspection agency existed and when specifically authorized by military commanders and Army purchasing officers.

The last-named requirement was impressed on all Veterinary Corps officers in the Zone of Interior who were reporting on any inspections of foods other than those of animal origin. Thus, throughout the war, the Veterinary Division, Surgeon General's Office, advised its personnel in the field that this activity was not a regularly defined veterinary activity, that no specialized training programs would be conducted to qualify veterinary personnel as fruit and vegetable inspectors, and that where the local commanders or purchasing officers had authorized them to conduct such inspections, then this



FIGURE 90.—Army Veterinary Service personnel in the European theater inspecting subsistence supplies for sanitary condition.

requirement would be limited to products inspection for sanitary condition only. The Surgeon General's Office was particularly interested in the suggestion made by the Office of the Quartermaster General in 1941 that, due to seasonal conditions and existing military demands for large quantities, the grading of these products was being varied by civilian inspectors (*7*, *8*); it was held unreasonable for veterinary personnel to review the grade quality of products being delivered if the grade standards were unknown. Presumably, the suggestion was made to emphasize that quartermaster purchasing officers would discourage Veterinary Corps examinations of nonanimal foods



FIGURE 91.—Inspecting vegetables and fruit at a U.S. general depot in England.

for grade quality but that veterinary sanitary inspections of such foods for fitness or sanitary condition were desired. In practice, it was shown, however, that better quality foods of nonanimal origin were received (following grade examinations by civilian inspection personnel and agencies) when Veterinary Corps officers check graded these products at the time of delivery and reported gross deviations from normal, acceptable standards. At about one-half of the quartermaster depots and sections of general depots in the Zone of Interior that received, stored, and distributed nonperishable subsistence, the depot veterinarians were delegated inspection responsibility over canned fruits and vegetables.

In many oversea theater commands, the Army Veterinary Service routinely inspected the supply of foods other than those of animal origin concurrently with its surveillance inspections of meat and dairy products (figs. 90 and 91). Sometimes, however, the Army Veterinary Service was requested to inspect these products only when they had deteriorated or become spoiled. Salvage procedures were then set up under veterinary supervision, and, of course, the losses then were dropped from quartermaster accountability under the provisions of veterinary certificates for food found unfit for troop issue. Under these circumstances, little could be accomplished to improve the methods and procedures for the receipt, storage, distribution, and other handling of non-animal-origin foods within the theaters such as was accomplished

with meat and dairy products. Beginning with reports of mid-1943, the Surgeon General's Office, on request, furnished statistical data to the Office of the Quartermaster General on the losses of foods other than those of animal origin that were reported by the Army Veterinary Service in the oversea theaters (*9*, *10*, *11*). By October 1944, veterinary reports of condemnations had increased from 133,106 pounds to 714,375 pounds each month in five or six theaters, but even this was admittedly a very incomplete record of the quantities actually lost; in the 18-month period from July 1943 through December 1944, the reported rejections aggregated 5,863,199 pounds.

Veterinary Food Inspection Service Organization

The Surgeon General was responsible for obtaining and maintaining the state of health of the Army. Thus, nutritional adequacy and the fitness of all foods used by the Army were of real concern to the Medical Department. This was particularly true with respect to the supply of meat and dairy products which are capable of transmitting diseases to the human being and are in themselves favorable media for the development of viral agents. The Army Veterinary Service, as an agency of The Surgeon General, was responsible for determining whether foods of animal origin were sound, fit for human consumption, and of proper grade and sanitary quality. It did not limit itself to products inspections but also inspected the establishments where these products were processed, produced, stored, or otherwise handled. For purposes of carrying out this responsibility, the Army Veterinary Service was organized and administered in a manner somewhat paralleling the Quartermaster Corps organization concerned with subsistence procurement, storage, and distribution. In general, the Chief of the Veterinary Division, Surgeon General's Office, exercised technical and professional supervision over all subsistence inspections performed in the field by the Army Veterinary Service, this supervision being more direct in the Zone of Interior than in the oversea theater commands. In the Zone of Interior, the veterinary operating agencies or personnel actually performing the inspections included the veterinary officers who were assigned to or detailed to the field headquarters and to market centers of the Quartermaster Market Center System, the service command veterinarians, camp or station veterinarians, Army Air Forces base veterinarians, depot veterinarians, and veterinarians assigned to the Transportation Corps ports of embarkation.

The veterinary personnel who were on duty within the quartermaster center system represented the Surgeon General's Office, and, working under the officer in charge of that system, coordinated and directed the field veterinary inspections as concerned the procurement, storage, and distribution of perishable subsistence of animal origin. In each service command, the service command veterinarian, as a member of the staff of the service command surgeon, coordinated all inspection activities within the geographic limit of the command (except in areas in the immediate vicinity of depot veterinary

detachments) and maintained close liaison with the veterinary personnel of the market center system to insure that the most effective procurement inspection service was rendered. Also, the service command veterinarian administered and supervised the inspections of establishments which were located in the areas of the service commands. At the camps or stations under the jurisdiction of service commands, the station veterinarians, normally on the staff of the station surgeon, inspected the meat and dairy products which were received for local issue to troops. This was also true at Army Air Forces bases. Usually, most items, having been received through quartermaster depots and market centers, had been inspected at their sources for grade quality and sanitary condition so that the station veterinarian reexamined such items for sanitary condition only. Of course, complete acceptance inspections were performed whenever contractual documents of the quartermaster market centers and procuring depots so specified, and on all locally purchased products, including those bought by Army exchanges and concessionaires. Other inspections made by station veterinarians included periodic checks of the products in storage locally and final inspection of the products at the time of issue to messhalls or sale. The depot veterinarians, operating directly under depot commanders, inspected the nonperishable foods of animal origin which were received, stored, and distributed at the depots and performed food procurement inspections in nearby metropolitan areas; close liaison was maintained by depot veterinarians with the service command veterinarians. To insure that the veterinary food inspection activities were standard and uniformly applied on a nationwide basis, specially selected and qualified veterinary officers were detailed, under the supervision of The Surgeon General, as traveling veterinary consultants to routinely inspect or to specially investigate and to provide assistance and instructions to service command, station, and depot veterinarians on the principles and practices of military meat and dairy hygiene inspections. This was started in the spring-summer of 1943.

In the theater commands overseas, the veterinary inspections of the Army's food supply were conducted by personnel assigned to hospital units, major and medium port headquarters, quartermaster refrigeration companies, and various other air, ground, and service forces units. Also, a large number of food inspecting personnel were placed on detached service with units such as quartermaster depots, and others were assigned to so-called provisional organizations set up within the theaters, such as base commands, service commands, island commands, base sections, and army garrison forces. However, there were two units, described in War Department tables of organization, that were specially developed and deployed in the theaters specifically for the inspection of foods. One was the veterinary food inspection detachment and the other was the veterinary detachment, aviation. The former, composed of a veterinary officer (in the grade of captain or first lieutenant) and four enlisted personnel, first appeared in September 1942 when several such units were organized and then field tested at the Desert Training Center. The original

ones were designated as lettered veterinary detachments (food inspection), but this name was changed later to a numbered medical composite section (food inspection). By mid-1945, these units were redesignated as numbered veterinary food inspection detachments. During World War II, 120 such units were activated pursuant to War Department authorization, 31 in the Zone of Interior and the remainder in the oversea theaters.

The other unit was the veterinary detachment, aviation, designed for deployment with a numbered air force. The unit was made up of two parts, the detachment or basic element and the section or augmentation element. The former provided space authorization for one officer (in the grade of major) and three enlisted personnel to be operational for an air force of approximately 25,000 troop strength, whereas the section, authorized one officer (in the grade of captain or first lieutenant) and two enlisted personnel, was designed to augment the detachment at the rate of one section for each additional 25,000 troops. During World War II, eight such numbered detachments were named for activation (the 1st through the 8th), but only five of them were organized, the latter including a total of 27 augmentation sections as follows: 1st Veterinary Detachment, Aviation, with the 10th, 11th, 12th, 13th, 17th, 21st, 22d, 23d, and 26th Veterinary Sections, on duty with the Eighth Air Force in the European theater; the 2d Veterinary Detachment, Aviation, with the 14th, 15th, 16th, 18th, 19th, 20th, 24th, 25th, and 27th Veterinary Sections, on duty with the Ninth Air Force in the European theater; the 3d Veterinary Detachment, Aviation, with five subsections, in the Southwest Pacific with the Fifth Air Force; the 4th Veterinary Detachment, Aviation, with sections I and II, in the Southwest Pacific Area with the Thirteenth Air Force; and the 5th Veterinary Detachment, Aviation, with two subsections, which was on duty with the XXI Bomber Command, later the Twentieth Air Force, in the Central Pacific Area. All of these were operational before the end of 1944, and, with the exception of the 5th Veterinary Detachment, Aviation, they were organized in the oversea theaters.

In this discussion of functional organization of the Army Veterinary Service which was concerned with food inspection, several matters may be described in regard to the veterinary personnel as individuals. The inspection of subsistence is perhaps the most difficult type of inspection. A manufactured article such as the key-opening can may be tested for strength, analyzed for materiel composition, and measured for size and shape; the machine that manufactured one will manufacture others that are practically identical. Rigid contractual requirements and specifications are prescribed for these, and those cans showing a defect or fault of one kind or another are rejected. This is not true for subsistence products. No two carcasses of beef are replicas, just as there are no two disease epizootics identical. Inspection of subsistence thus remains humanized. It is a matter of piece-by-piece inspection, with the inspector determining the compliance of each piece within a variable range of requirements. Under this situation, the qualifications of

veterinary subsistence inspector personnel necessarily were experience, alertness in the early detection of defects in products and operations, and sound judgment. Training was a valuable and necessary adjunct to these qualification factors. All veterinary officers and enlisted personnel were specially trained in military meat and dairy hygiene inspection procedures. Much may be said concerning the relations with contractors, but the following is a formal and brief comment on this important subject (*12*):

> a. Authority.—All the weight of the Army is behind the inspector. He is entrusted with a job of vital importance and relied upon to do it well. When a large proportion of the output of a plant is contracted for by the Army, as is often the case, it is within his power to suspend the plant's operations if products do not conform [by simply halting inspection procedures]. However, he should use this power wisely, and not abuse it. Protecting the Government is his major concern, and no other interest should be allowed to interfere. But he should realize that a vendor's failure to meet a point in contract requirements is usually not a deliberate slighting but a deficiency that the inspector can indicate and have rectified in a routine manner. He should also remember that an unnecessary stoppage of production delays delivery of needed food to troops at home and at the fighting fronts.
>
> b. Cooperation.—The inspector will in no way obligate himself to the contractor. His personal relations with the contractor, however, should be of a cooperative nature. The contractor is required to provide the inspector with desk space, locker space, space for storing Government forms, and such other facilities as are needed in the efficient operation of his work. In turn, the inspector must show consideration for the problems of the contractor. By working together they can attain their legitimate objectives with the least amount of friction.

Special rules of conduct were observed in the veterinary organizations conducting inspections in contractor plants that were generally more restrictive than prescribed in the regulations of the Army (*13*) and in the standard contractual documents relating to fraud. The duties of veterinary food inspection personnel varied with each situation, and, in connection with their procurement inspection activities, the duties and scope of inspection generally were set forth in the contractual documents. The more common duties were as follows: (1) Sanitary inspection of plants and establishments that produced, prepared, manufactured, stored, transported, or otherwise handled subsistence products for the Army; (2) inspection of products for sanitary condition and soundness; (3) quality inspections of products for type, class, grade, and special requirements of individual contracts; (4) submission of representative samples of products, raw materiel, basic components, or partially processed items to designated laboratories for analysis; (5) inspection of packaging and labeling, packing and marking, and strapping, and of the count or weight; (6) inspection of sanitation, icing, and storage of conveyances used to transport the products; (7) inspection of loading operations; (8) inspection of products for quantity and condition upon arrival at first destination; (9) inspection of the Army food items in commercial and Government-owned warehouses, cold storage, and any other places where such stores are received, stored, or handled; (10) maintenance of daily and other

regular records of quantities inspected, passed, or rejected, and of such other activities as were indicated; (11) reporting to immediate superiors or contracting officers on sanitary conditions, progress of production, labor conditions, and any unusual conditions which would affect contractual relations; and (12) surveillance against pilferage, sabotage, improper handling, and other actions that would contribute to food losses and unfit foods for issue to troops (*12*).

VETERINARY FOOD PROCUREMENT INSPECTIONS

The veterinary inspections incident to Army procurements were purposefully made to determine both the quality, including type, class, and grade, and the sanitary condition of subsistence products and included also the sanitary inspection of commercial establishments or plants from which these meat and dairy products originated, with the exception of such plants as were operating under the supervision of a recognized inspection agency. The products were inspected upon delivery and, in addition, were frequently inspected before purchase or delivery; that is, during the processes of production, preparation, or manufacture, if the nature of the products or the interests of the Government made such inspections necessary. Thus, veterinary food procurement inspection commonly made reference to two specific procedures or classes of inspection: (1) Class 3, or inspection prior to purchase, and (2) class 4, or inspection on delivery at purchase. These were described in Army Regulations No. 40–2150:

Prior to purchase (class 3).—Inspections conducted prior to purchase are made for the purpose of determining compliance with contract requirements and the sanitary condition of the product at the time of preparation or manufacture, and are made only when the contract or other written purchase instrument makes specific provision for this inspection. Normally, provision is made for such inspection only in the case of canned, cured, or prepared products. Many packing house products such as sausage, meat loaves, etc., can be most satisfactorily inspected during preparation. The quality, condition, and proportions of the ingredients used in products of this nature are masked by seasoning and the various procedures of processing. Wherever practical, an inspection of manufactured products should be made at point of origin during manufacture. Point of origin inspection for compliance with the contract provisions and with final inspection for condition and soundness only, at destination, is sometimes provided for in the purchase instrument, when the point of origin of the product is distant from the receiving station, or when such point of origin inspection is manifestly to the advantage of the Government.

On delivery at purchase (class 4).—The inspections of products made at the time they are offered for delivery at purchase are made for the purpose of final determination as to acceptability. These will ordinarily be made at the points of delivery to the Army, such as quartermaster commissaries, depots, refrigerating plants and storehouses, docks, piers, etc., and occasionally when so specified, at points of acceptance such as contractors' plant, public cold storage plants, storehouses, etc. Products reported as inspected and passed under this inspection will be limited to those purchased with federally appropriated funds. Inspections on delivery at purchase are made of all products offered for delivery by a contractor. These products, if accepted, would be accounted for at receipt

by the preparation of a receiving report by the receiving quartermaster. The inspection certificate on this form should be signed by the veterinary officer making the inspection. This includes inspection both for compliance with specified requirements as to type, class, and grade, and for sanitary condition of the product, except in those instances in which the written purchase instrument provides for a prior to purchase inspection for compliance with specified requirements at point of preparation or manufacture and for final inspection for quantity, condition, and soundness only at time of delivery at purchase. Inspections will be made upon delivery at a station of all products purchased locally, and also of all products delivered to the station by the contractor which have been contracted for by a depot under a stipulation that the products will be delivered to the consuming station at contractor's expense, and providing for acceptance inspection at destination.

All subsistence coming into ownership of the Army was subjected to a class 4 inspection, but provision for class 3 product inspection was optional with the contracting officer, usually with the advice of a veterinary officer, and this class of inspection was conducted only if specifically provided for in the pertinent contractual document. Class 4 inspection only was the usual food procurement inspection procedure in the peacetime Army, but, during World War II, emphasis was placed on the class 3 products inspections in contractors' plants followed by the class 4 inspection which was made at the time of delivery of the finished product. In fact, by 1944, all meats and nearly all other foods of animal origin were inspected at origin or in contractors' plants and then for sanitary condition and quantity at the point of delivery. In July 1944, class 3 inspections were being made in 1,000 establishments. The term "origin inspection" or "in-plant inspection" was commonly used to indicate the class 3 product inspection, and the class 4 inspection was termed destination inspection. The latter class of inspections was conducted in depots, market centers, camps, ports of embarkation, and Army and commercial storage plants immediately upon receipt of the products from the contractors. It was a regular, prescribed procedure that no meat and dairy product would be formally received and that the civilian contractor would not be paid, until the report of the veterinary class 4 inspection was rendered (*14*).

When the two classes of inspection were specified in the contractual documents, the class 3 inspection included both the examination for the grade quality of the product and the veterinary professional inspection for its sanitary condition; the product which was found to be acceptable on the class 3 inspection was then reinspected when actually procured. The second part of veterinary procurement inspection, or class 4 inspection, was conducted only to determine the product's sanitary condition and count. The inspections for contractual compliance were normally required but once, as the type, class, and grade qualities usually did not change when once properly determined; however, sanitary inspections were conducted repeatedly, or on the class 4 inspection, of the same product to insure the continuance of the condition found to be correct when the class 3 inspection was conducted.



FIGURE 92.—In Iceland, the veterinary inspection program for the fresh milk supply to the Armed Forces started with the dairy herd at the farms and continued through the milk pasteurizing plant.

When the contractual documents did not authorize class 3 inspections, the class 4 inspections included both the examination for type, class, and grade quality, and the inspection for sanitary condition. This examination for grade quality and professional inspection for sanitary condition was conducted concurrently by the same Army veterinary officer because the two procedures overlapped and blended in their essential features. In military meat and dairy hygiene, it was axiomatic that no quality grading or inspection for contractual requirements was contemplated which did not include simultaneously a professional investigation of the sanitary condition of products and the environs in which those products were handled; the combination proved to be an efficient, practical procedure and was economical in terms of costs, manpower, and unity of supervision.

The previous discussions were pertinent not only to veterinary food procurement inspections during World War II in the Zone of Interior but also to activities in the theater commands wherever the Army procured subsistence. These classes of inspections were conducted on all local procurements, such as by the Iceland Base Command (fig. 92), in Canada, in the



FIGURE 93.—In Australia, close supervision was necessarily maintained on the processing or "cook" times and temperatures of canned meats procured for the Armed Forces.

Central and South American countries, on the African Continent, and in a great many other places. There were modifications of this procedure, however, where the U.S. forces were not subsisted on Army-procured foods. Thus, in 1942, Army troops in Australia were rationed by the Australian Army, and, in China throughout the war period, military personnel were regarded by the Allied Chinese Nationalist Government as guests and thus were housed and fed by the special Chinese Army Service Corps. There were a variety of problems in regard to the inspection of these supplies by the Army Veterinary Service; however, no objections were seriously interposed by these two foreign agencies against Army Veterinary Corps officers inspecting the products for sanitary quality. In fact, only in Australia did any real problem arise, and this originated with the senior U.S. Army headquarters staff and quartermaster procurement officers who, without reasonable argument, seemed to have permitted the health matters of the Army and business economies to be subordinated to political aspects for gaining Allied cooperation or maintaining international good will. Fortunately, this argument did not last long, and a full-scale veterinary food procurement inspectional service was soon established in Australia (fig. 93).

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Procurement Inspection Responsibility

The Quartermaster Corps was responsible for the procurement of subsistence and for insuring that such procurements conformed fully to contract and specification requirements. In the performance of this responsibility, particularly as it applied to foods of animal origin, the Quartermaster Corps was regularly assisted by the Army Veterinary Service which conducted the inspections. These veterinary inspections were usually advisory in nature, with the exception of those conducted to determine soundness and sanitation at which time the veterinary reports and recommendations were accepted as final, and the subsistence found unsound or unfit for human consumption was not procured. However, on the basis of veterinary reports of type, class, or grade quality, and quantity, the quartermaster contracting officer had the final authority to accept or reject the products. Thus, in regard to the latter, the Army Veterinary Service truly acted as a technical adviser, assisting contracting officers in the interpretation and application of contractual requirements and specifications as they applied to the products being procured. Naturally, inspection per se stood for grade quality, and, in extreme situations, procurement per se stood only for quantity. Veterinary inspectors, however, would reject everything, and contracting officers would buy anything, while the civilian contractors complicated the picture by offering everything and anything. In regard to these inspections, the following was reported (*15*):

> * * * In this conflict between quality and quantity, inspection found itself squarely in the middle. Inspectors were bound by the legal aspects of the contract and consequently were obliged to insist upon deliveries conforming to specifications and other terms of the contract. Where conflicts between quality and quantity occurred, a compromise had to be evolved by cooperation among these three groups so that delivery of supplies would not be delayed. It mattered little how accurately and scientifically specifications were drawn if commodities were not kept up to the established standard by means of careful testing and inspection. At the same time, proper inspection, by insuring a smooth flow of adequate * * * [subsistence supplies] from production line to training camp and battlefield, constituted a vital link in the chain of * * * [subsistence] supply.

Thus, it was obvious the "duties of the veterinary officer in respect to the inspection of foods and the duties of the quartermaster officers in connection with procurement, storage, and issue are closely related" and that a "* * * spirit of cooperation and understanding of each other's duties and responsibilities must exist for efficient operation" (*16*).

Changes in Veterinary Food Procurement Inspections

There was considerable change in the procedures for veterinary food procurement inspections during World War II. This paralleled the changes which were made in the Quartermaster Corps procedures for procuring subsistence for the Army and, in fact, was in great part responsible for the

successes in the quartermaster market center system and centralized procurement system for nonperishable subsistence that were evolved during the war.

In the spring of 1941, The Quartermaster General authorized post quartermaster or purchasing officers to procure Army boneless beef for local issue purposes and to communicate directly with the Veterinary Division, Surgeon General's Office, with regard to arrangements for veterinary officers to conduct class 3 inspections in all procurements of that product (*17*, *18*). Concurrently, changes were proposed in Federal specifications concerning carcass or wholesale market cuts of fresh or frozen beef so that the latter would be inspected, if so specified in contractual agreements, for grade quality at contractors' establishments (that is, class 3 inspection) and inspected at point of delivery or final acceptance (that is, class 4 inspection) for condition only. The procurement actions in 1940–41 were a major advance in the developing trend for class 3 inspection and were important because they antedated the veterinary inspection procedures that were set up with the start of the quartermaster market center system for centralized perishable subsistence buying. In anticipation of the demands that the growing Army would place on the newly developing system of food procurement, the Veterinary Division, Surgeon General's Office, in August 1940 and again in January 1941, requested personnel space authorizations for ordering 60 or 70 Veterinary Reserve Corps officers to extended active duty (*19*, *20*). By that time, many contractors supplying meats to the Army were in need of veterinary class 3 inspectors at a number of widely separated establishments. It may be noted that the Surgeon General's Office remained operationally responsible regarding arrangements for the conduct of class 3 inspections; this responsibility was transferred later to the service commands.

The quartermaster procedures for perishable and nonperishable subsistence procurement were transferred from the many individual Army camps and were regrouped by the Quartermaster Corps under two rapidly developing procedures for subsistence procurement and distribution in the Zone of Interior: The centralized purchasing of nonperishable (canned) subsistence by quartermaster depots, and the quartermaster market system which was concerned with the supply of perishable or fresh food products. Thus, only one depot and one market center procured nonperishable and perishable products in a given city, and no longer were the products, previously rejected, reinspected by the Army Veterinary Service and passed for Army procurement. The more singular advantages of class 3 inspections under the new quartermaster purchasing systems were that, under wartime conditions, it operated to keep rejections at a minimum; facilitated the correction of faulty processing operations before these led to the production of substandard products; conserved labor, critical materiel, and transportation facilities; and expedited the movement of products from the establishments to camps, depots and storage areas, and ports.

Federal and Other Specifications in Contractual Agreements

Regarding the grade quality which was mentioned so many times as comprising one of the major features of veterinary food products procurement inspection, it must be understood that this was set forth in the contractual agreements between quartermaster purchasing officers and the civilian contractors. Actually, the contractual documents most frequently did not describe the grade quality so much as they made reference to one or more specifications that did, and the specifications thus became an integral and legal part of the contract. Generally, there was a specification for each meat and dairy product which was procured by the Army, and there were other specifications, also made a part of the legal contractual documents, relative to such matters as packaging and labeling, packing and marking, and the general considerations of Army procurement procedures. These commodity specifications were of several major types: Federal specifications, which were promulgated by the U.S. Department of the Treasury; U.S. Army specifications; Quartermaster Corps tentative specifications; and, of course, the modifications of the foregoing types or certain special requirements such as were written into the contractual documents. The specifications were the basis for conducting veterinary procurement inspections concerning grade and by common practice comprised part of the regular equipment for all veterinary inspection personnel. The possession of the pertinent specification was as essential to them as was the possession and knowledge of the contractual document. Federal specifications may be regarded as governing the procurement of commodities by any or all Federal agencies which purchased them, including the U.S. Department of the Treasury, Veterans' Administration, U.S. Department of Agriculture, Navy Department, and War Department. These, when they were first issued in 1922, were termed Standard Specifications, later U.S. Government Master Specifications, and, after September 1929, Federal Specifications.

At the beginning of the war, there were 68 Federal specifications of meat and dairy products which were cited in contractual agreements and were the basis for veterinary inspections for grade quality. Each specification followed the same topical outline:

Other applicable Federal specifications
Types, classes, and grades
Material and workmanship (that is, standards of raw material)
General requirements (as to delivery)
Detail requirements (of the various types, classes, and grades of the commodity)
Method of inspection and test
Packaging, packing, and marking for shipment
Requirements applicable to individual procuring agencies
Notes

The promulgation of these specifications was the responsibility of an agency of the U.S. Department of the Treasury, the Federal Specifications Board,

or the Executive Committee, Procurement Division. This agency was subdivided into a variety of subcommittees such as Feeds and Forage Technical Committee and Provisions Technical Committee, whose chairmanships and memberships included, on invitation of the Federal Specifications Board or Executive Committee, representatives from civilian industry and various governmental departments. After the issuance of such an invitation, approved on 8 November 1934, by the Assistant Secretary of War (*21*, *22*), Veterinary Corps officers who were assigned to the Surgeon General's Office were seated as permanent members of the Provisions Technical Committee and at various times were named as chairmen of such of the technical committee's subcommittees as were concerned with the development of specifications on meat and dairy products.

During the war, the developmental work on specifications was under constant study, but there were no major revisions or many newly promulgated ones; in fact, the procedures for developing Federal specifications that would meet the needs and approval of all wartime procurement agencies of the Government were generally quite slow, and the Army resorted to the development of its own military specifications for the many new kinds of food products that it procured during World War II. In fact, this military specification development was begun in 1941 at the Subsistence Research Laboratory (in February 1944, designated the Subsistence Research and Development Laboratory, and after the war, renamed the Quartermaster Food and Container Institute for the Armed Forces) at the Chicago Quartermaster Depot, Chicago, Ill. Its specifications were referred to as "Quartermaster Corps Tentative Specification C.Q.D. No. _____." For canned meats alone more than 50 such specifications were developed (*23*). Each specification described in particular the raw materials, the procedures, and the testing that would be observed by the veterinary inspection personnel in the establishments which were producing these products. Near the end of the war, sample cans of these products were submitted routinely by the Veterinary Corps officer from the establishment to the quartermaster research laboratory for so-called acceptability testing, but, unfortunately, the results of this test were returned direct to the contractor and, most frequently, long after the establishment had stopped production and had shipped the product. Of course, in-plant veterinary organoleptic examinations of the end products and the chemical and other analytical tests, which were conducted at the service command medical laboratories, were completed to the satisfaction of the inspecting Veterinary Corps officer before the contractors made the shipments.

Centralized Procurement of Nonperishable Animal-Origin Foods

Before World War II, nonperishable (canned) meat and dairy products were little needed in feeding the Army, and only a few items were procured on a centralized basis. During the 1930's, canned bacon was being procured by the Chicago Quartermaster Depot for supply to the oversea departments,

and a few other items were purchased for distribution to nearby Army camps. In 1939, the first real change to improve the Army's canned meat supply was made by the Office of the Quartermaster General when five frequently procured items were designated for central procurement and distribution by the Chicago Quartermaster Depot. However, another 2 years elapsed before the centralized procurement system for canned meat and dairy products was expanded to become effective. Actually, products such as canned corned beef, corned beef hash, meat and vegetable stew, meat and vegetable hash, pork luncheon meat, and Vienna-style sausage were quite similar to those available commercially and were obtained in their commercial forms. Inspections were made usually at the depot by examining representative sample cans of the end products that were forwarded by the contractor, and only infrequently was a depot-assigned veterinary officer ordered to temporary duty in the contractor's establishment to conduct class 3 inspections.

This peacetime inspection procedure for canned foods was halted in January 1941 when The Quartermaster General and The Surgeon General concurred in a proposal to move procurement inspection from the depots to contractors' establishments (*24*, *25*, *26*, *27*). The proposal, approved by the Secretary of War on 18 January 1941, granted authorization to any or all depots which procured subsistence to communicate directly with corps area (later, service command) commanders to issue orders for the latter's Veterinary Corps officers to travel to such places as would be required in connection with class 3 inspection of foods procured for the Army. Of course, at this time nearly all depots were buying some canned meats and dairy products other than those few previously named for central procurement by the Chicago Quartermaster Depot. Effective on 1 October 1941, a new system for nonperishable subsistence procurement and distribution was set up by the Quartermaster Corps, and three depots were named as procurement points: Chicago, Ill., New York (later Jersey City, N.J.), and San Francisco, latter designated California—each being assigned the commodities it would procure. Thus, eight canned meat items, dried egg powder, dried milk powder, and canned evaporated milk were designated for central procurement by the Chicago Quartermaster Depot. (This depot also undertook the buying of certain cured and smoked products, such as bacon and ham, and of frozen boneless beef, but the procurement responsibilities for these, as perishable products, were transferred later to the new quartermaster market center system.) Canned salmon was to be centrally procured by the San Francisco General Depot; canned fruits and vegetables, and cereals were also listed for procurement by these depots as well as by the depot at Jersey City.

As the centralized procurement system for nonperishable meat and dairy products was launched, the responsibility for conducting the veterinary inspection was often transferred to another depot more closely located to the contractor's establishment. Thus, the veterinary detachment, Seattle Army

Service Depot, routinely conducted the procurement inspections for canned salmon, although the San Francisco (or California) Quartermaster Depot was designated as the procurement depot. Similarly, as the Chicago Quartermaster Depot's procurements of canned meats were expanded to 70 cities and towns, a varying number of newly developing depot veterinary detachments conducted class 3 inspections in the plants which were producing canned meats under contractual agreements with the Chicago installation. These developments did not follow those principles originally set forth in January 1941, but there was no doubt that certain procurement officers and quartermaster field installation commanders had come to the unjustifiable opinion that depot veterinary detachments were better qualified and were more appreciative of the problems in rendering the procurement inspection services than were those personnel and detachments which were under service command jurisdiction (*23*, *28*, *29*). The Office of the Quartermaster General supported this development but limited it to the extent, measured only in geographic terms, of requesting depot commanders to retain the operational boundaries of depot veterinary detachments within a 30-mile radius of their installations (*30*, *31*). Only when the class 3 inspections were required at places 30 miles or more distant from the depot conducting the inspections did The Quartermaster General recommend that the depot desiring the inspection request the services of veterinary personnel from the service commands.

Another major inspection problem relating to nonperishable subsistence was that the Procurement Division, Chicago Quartermaster Depot, was without direct veterinary representation, and problems of inspection at contractors' plants were belatedly answered, sometimes by the meat buyers themselves. Not infrequently, contract provisions were changed without proper notification to inspecting Veterinary Corps officers, and the Quartermaster Subsistence Research and Development Laboratory added to the complexity by setting forth requirements on production in the plants. In the Zone of Interior, service command veterinarians were especially critical of the inflexibility of procurement inspection actions imposed by the Chicago Quartermaster Depot (*32*, *33*, *34*), and it was not until the last year of the war that the professional and technical problems of inspection relating to canned meat and dairy products procurement were handled in a manner comparable to that evolved by the quartermaster market center system for inspections of perishable foods. Eventually, however, the depot veterinarian, Chicago Quartermaster Depot, gained direct representation on the staff of the depot's Procurement Division and rendered professional and technical assistance on nonperishable food procurement inspections.

As to the extent of canned meat and dairy products procurement inspections, it may be noted that contractors for canned meats alone numbered 135; these had approximately 20 branch plants, located in 70 or more cities and

towns throughout the United States. Between August 1941 and June 1945, procurements from these sources totaled 3,580,617,869 pounds of canned meats:

	Pounds
1941 (August through December)	75,494,920
1942	923,243,560
1943	663,887,844
1944	1,227,640,683
1945 (January through June)	690,350,862
Total	3,580,617,869

This quantity included 221,148,305 pounds purchased by the Quartermaster Corps for the U.S. Navy, under a coordinated Army-Navy procurement program that began in June 1942.

Quartermaster Market Center System

To facilitate the procurement and distribution of perishable foods, the Quartermaster Corps formulated its market center system in April 1941 (*35*, *36*, *37*). Under this system, The Quartermaster General established and maintained purchasing offices in various parts of the United States, designated as quartermaster market centers, to purchase perishable food in the important city markets and to spread the purchases geographically as widely as was possible. At the onset, only fresh and frozen fruits and vegetables were procured by the market center system, but, in mid-1941, The Quartermaster General indicated that other food items would soon be designated for procurement by the market centers. Thus, on 6 October 1941, the first food items of animal origin, butter, cheese, eggs, and poultry, were added to the procurement schedules. By this time, 29 quartermaster market centers had been established and were accomplishing perishable food procurement for approximately 100 Army camps throughout the United States. In effect, the market center system of buying replaced the peacetime purchasing system for fresh meat and dairy products by separate Army camps and airfields, many of which by this time had expanded or were so located that the city markets in their vicinity were too small to meet their needs. Under the market center system, these installations made their needs known to a specified market center where arrangements were then made for procurement and delivery. In this manner, there was an equitable distribution of perishable meat and dairy products to all Army camps and airbases in the United States, regardless of their location and without respect to the availability of such supplies in nearby city markets.

The market centers were controlled by The Quartermaster General who established, on 16 June 1941, the Field Headquarters, Perishable Subsistence Section, Office of the Quartermaster General (*38*), with station in Chicago, under which these market centers actually operated. On 2 October 1941, a Veterinary Corps officer was assigned to this central headquarters for market

centers to act as the technical adviser on veterinary inspection procedures; he acted informally also as a representative of the Veterinary Division, Surgeon General's Office (*39*). After that time, veterinary officers were assigned to a few of the market centers, but, for the most part, the latter depended on the additional duty assignments of veterinary officers from a nearby Army camp under service command jurisdiction or from a quartermaster depot to act as market center veterinarians. Their duties were to coordinate and process the requests for veterinary inspections and to review the reports of inspections which were conducted for the market centers. The actual inspection workload at procurement points, cold storage plants, and other establishments concerned in the Army's perishable subsistence supply was carried on by the Army Veterinary Service with service commands, with quartermaster depots and sections of general depots, and infrequently by Army Air Forces veterinary personnel. It was not intended that the market center system would have any large numbers of veterinary personnel assigned to it but rather that it would utilize the services of those already assigned to the Army camps, depots, airbases, and other military installations to do the actual work. Significantly, the latter also were called upon, as shown previously, to inspect in the nonperishable subsistence supply system.

This utilization of Veterinary Corps personnel to inspect for the quartermaster market center system originated with a proposal agreed to by The Quartermaster General and The Surgeon General (*40*, *41*, *42*, *43*). On 17 October 1941, The Adjutant General authorized officers in charge of the market centers to call on service commands (then designated corps areas) who would arrange for their assigned Veterinary Corps officers to travel to places of inspections in commercial food establishments. It will be recalled that earlier, in January 1941, depots procuring nonperishable food products were granted similar authorizations. In November 1941, The Quartermaster General authorized the market centers to call on depot veterinary detachments to provide class 3 inspections of meat and dairy products in the vicinity of their depots.

In February 1942, market center operations were expanded to the procurement of meats and meat food products, and, in March 1942, fish and seafoods were added to this procurement list. Frozen boneless beef, war ham and bacon, and war-style lard were transferred from the Chicago Quartermaster Depot to the procurement responsibilities of the market centers in the fall of 1942; fresh milk and cream were added in February 1944 (fig. 94). By mid-1943, the number of market centers had increased to 37; these distributed foods to more than 500 installations and for shipment overseas. The Army market centers served not only Army posts, but also the Navy, Marine Corps, Merchant Marine, Coast Guard, and War Relocation Authority. The Army scheduled its procurement of these products in harmony with seasonal production and stored some perishable food items, such as eggs,



FIGURE 94.—Preparation of frozen boneless beef for procurement by market centers.

cheese, and butter, for consumption in slack seasons of production. During 1944, the market center system also took over the purchase of canned butter and Army spread, canned process cheese, and canned chicken and poultry. From the start of the quartermaster market center procurement program to 31 December 1945, meat and dairy products aggregated 13,420,247,886 pounds with a value of $3,359,329,365 (*5*). Actually, procurement inspection of products for current consumption was only a part of the veterinary food inspection services for the market center system. There were large-scale programs for the procurement of seasonal products to be held in storage for distribution later. Thus, in connection with butter, the headquarters veterinarian of the market center system indicated:

> A large butter storage program started May 1943, and required much work of the Veterinary Section of this office and the inspectors in the field. This program resulted in approximately 42 million lbs. of butter being placed in storage. In addition, in July 1943, the Dairy Products Marketing Association offered 36 million lbs. of butter to the Armed Forces. This product was located in 106 cold storages in all parts of the country. Requests for inspection of this butter were handled like requests for inspections of all other products of animal origin. The inspection work was completed in approximately 20 days, with 28,500,000 lbs. being accepted. The Dairy Products Marketing Association

also offered 20,879,035 lbs. more butter on 1 December 1943 and 5 million lbs. more on 11 December 1943. This product was stored in 51 cities in 22 States. Requests for inspection were forwarded as usual, and with the exception of a few places where there was a labor shortage, the inspections were completed in the 20 days allotted for the inspection and reporting of same. Inspection was requested every 30 days on all butter held in storage, and was also requested when bulk butter was removed for printing and shipment to final destination, or return to storage.

During the calendar year 1944, 100 million lbs. of butter were purchased under set-aside orders and stored as Government property.

Major Procurement Inspection Problems

The major problems relating to procurement inspection were the questionable inspections made on class 3 and class 4 inspections, the grading activities by the Agricultural Marketing Service, and the developing controversy over geographic areas of inspectional jurisdiction between depots and service commands. The last-named problem has been outlined and discussed in preceding paragraphs.

Mention must be made of the Agricultural Marketing Service, U.S. Department of Agriculture, and its utilization coequal with the Army Veterinary Service to determine the grade quality of meat and dairy products which were being procured by the quartermaster market center system. Since about 1916, this civilian agency (then called the Bureau of Agricultural Economics) had been developing standards for grades of beef and other meats in connection with its market-reporting system; in 1927, for the first time, that agency actually undertook the grading of beef in commercial food establishments, limited to nine large city markets (*44, 45*). In 1932, product grading services in 14 central markets were extended to include butter, cheese, eggs, and dressed poultry and rabbits. By law, the Federal grading was made only on products when offered for interstate shipment or when received at important central markets, and then only when specifically requested on a particular shipment or lot. At the beginning of the war, the agency's field inspection forces were small and were limited to operations in the large city markets, and relatively few members of the Nation's food industries voluntarily applied for its grading service.

In 1941, when the quartermaster market center system undertook the procurement of poultry, butter, eggs, and cheese, either this agency or the Army Veterinary Service was designated to determine the grade quality of these products at points of origin, the selection of one or the other being the choice of the contractor. A variety of complaints, including charges of duplicate inspections, were soon made against the Army Veterinary Service. These complaints were made to appear worse by the confusion that was allowed to persist that the determination of grade quality by the Agricultural Marketing Service was comparable to Army Veterinary Corps inspection which featured both sanitary inspection procedures and grade determination; that is, the Agricultural Marketing Service was truly not an inspection agency.

The Federal grading agency continued to be forced upon the food industries during the war period as the result of the development of wartime price control regulations which provided for price schedules dependent on the product's grade quality; it was a feature of economics and was not the least concerned in sanitary quality control. Even the highest graded cheese or dressed poultry could originate from tuberculosis-infected milk herds or poultry flocks. For example, its definition of grade standards for Swiss cheese was footnoted with the statement "grading certificates shall not be deemed to represent that the product graded meets this definition and shall not excuse failure to comply with the Federal Food, Drug and Cosmetic Act or any other Federal regulation" (*46*). This was the difference between grading and veterinary inspection.

A common complaint was the number of rejections by the Army Veterinary Service of delivered products which had been previously quality graded by the Agricultural Marketing Service. Of course, there was no general appreciation of the fact that the product grading may have been correct both at origin and destination or that it was entirely possible for perishable food commodities to deteriorate to the next lower grade after the Agricultural Marketing Service grading was originally conducted. This controversy was compromised by the reinspection procedures that were established by the quartermaster market center system, as follows (*47*):

> Where any of the food items indicated above [i.e., butter, eggs, cheese, and poultry] are inspected at point of origin by an inspector of the Agricultural Marketing Service and are found on inspection at receipt to be not the grade contracted for, the vendor will be notified and, if he so desires, may request a reinspection. In such event, the Quartermaster Marketing Center which made the contract will be immediately notified. On request of the Officer in Charge of the Marketing Center, the Agricultural Marketing Service of the U.S. Department of Agriculture will send a qualified representative to the camp, post, or station to reinspect the shipment in question. At the same time, the Officer in Charge of the Quartermaster Marketing Center will immediately make request to the Commanding General of the corps area in which the post or camp is located for the detail of a specially selected and qualified veterinary officer to make a reinspection at the same time as that to be made by the representative of the Agricultural Marketing Service.
>
> While the Agricultural Marketing Service representative and the veterinary officer will make their inspections independently, it is expected that they will compare notes of their findings and discuss same before rendering their reports. The result of this reinspection will be accepted by the receiving Quartermaster as being conclusive as to grade unless it should happen that the Agricultural Marketing Service representative and the veterinary officer making the reinspection do not agree. In this event the receiving Quartermaster will consider the certificate rendered by the representative of the Agricultural Marketing Service and the report of the veterinary officer and make final decision as to whether he will accept or reject the contested shipment.
>
> In all cases where the reinspection by the Agricultural Marketing Service representative and the veterinary officer substantiate the station veterinarian in his initial inspection, the cost of the reinspection will be assessed against the contractor, otherwise it will be borne by the Army.

Although the Agricultural Marketing Service was recognized by the market center system throughout the war period, the previously mentioned disagreements did not occur frequently after the first few months because the civilian contractors generally resolved the matter by requesting Army Veterinary Corps inspection on products being prepared in their establishments for Army delivery. Significantly, only the market center procurements of eggs, butter, cheese, and poultry were involved; the Agricultural Marketing Service posed no grading problem in regard to meats and meat products because these were quality graded solely by the Army Veterinary Service as were all other foods of animal origin, including fish, seafoods, and dairy supplies.

VETERINARY FOOD SURVEILLANCE INSPECTIONS

Surveillance inspections included the veterinary inspections made to determine the soundness and sanitary condition of Government-owned food products and the sanitary conditions of the places of receipt, storage, and other handling, including warehouses, cold storage plants, and storerooms on Army transports, ships chartered by the Army, and other carriers which handled, stored, or transported foods for the Army. The inspections were made as required on the receipt of Government-owned foods at a station, Army supply point, or in the field, and before transshipment, during storage, at time of issue, or at such other times as were judged to be necessary. Products subject to reclamation, pursuant to the guarantee provisions of contracts, were, in addition, inspected just before the expiration date of the guaranty period. Surveillance inspections were conducted repeatedly on the same products along the entire supply chain to insure the continuance of their soundness and sanitary condition between the time and places of procurement and issue. Although these surveillance inspections were primarily directed at the sanitary features of products and their environs, they also served to conserve food. They were the means of detecting the early signs of deterioration in quality and made it possible to utilize the product before deterioration had progressed to the point that it could not be used. In these activities, the Army Veterinary Service acted as technical and professional advisers to the surgeons who protected troop health, to quartermasters who received, stored, and issued the foods, to the transportation officers who moved the foods, and to the engineers who constructed and maintained the warehousing and cold storage facilities. Only the Army Veterinary Service, as a single agency, could relate the complete, continuous history of the Army's meat and dairy products from the places of manufacture or procurement to the issue points.

Inspection of Any Receipt of Subsistence Except Procurement

Of the several classes of veterinary surveillance inspection procedures, the class 5 inspection, conducted on Government-owned food products when



FIGURE 95.—Without adequate packing, subsistence arriving overseas became almost worthless.

received from another military installation or other agency, was especially important. It was conducted to determine the sanitary condition of Army products at the time of their receipt at depots for storage, at ports for oversea shipment, at supply points for redistribution, or at stations and airbases where they were to be issued. Usually, the inspections related to products received from another military installation, but some of these products were received direct from the contractors' establishments, as in the instances of shipments of canned meat and dairy products to the ports which had neither the time nor the facilities for full veterinary class 4 inspections. The ports of embarkation in the Zone of Interior became particularly concerned with inspection reports which were rendered on the receipt of products overseas, because the reported losses often pointed out defects in packaging, packing, or the methods of handling subsistence between the United States and the oversea theaters (fig. 95). Also, if the oversea receipt inspection revealed deterioration or spoilage of products, then a reasonable basis existed for an inquiry to be made of the shipping officer who may have shipped deteriorated subsistence or for an investigation to be made to determine the liability of



FIGURE 96.—Aerial port of embarkation for perishable subsistence supply in India, March 1944.

the commercial carrier or Army transportation agency. The class 5 inspection was also a means for reviewing the efficiency of veterinary inspection procedures at the original shipping points (or class 6 inspection).

Inspection Before Shipment

Veterinary class 6 inspection, or the inspection before shipment, was conducted to assure the shipment only of meat and dairy products which were sound and fit for issue to troops (fig. 96). Within the definition of establishments, the conveyances that were used to transport subsistence for the Army also were inspected for suitability and sanitary condition. Conveyances meant railroad cars, trucks, ships, and airplanes. Thus, class 6 inspections referred principally to sanitary inspections of products and of the conveyances. During World War II, veterinary personnel were requested to technically supervise the methods used in the loading or stowing of subsistence, particularly of refrigerated cargo.

In the inspection of perishable meat and dairy products at contractors' establishments and commercial warehouses, the concerned veterinary officers were advised specifically to closely supervise the precooling and loading of railroad cars and trucks as well as the sanitary condition of the conveyances,

their icing, insulation, refrigeration equipment, ventilation, and the methods of piling and bracing the cargo or loads. Special protective service instructions were issued by Field Headquarters, Perishable Subsistence Section, Chicago, Ill., relative to the conditions for shipping perishable products, and it became a requirement for contractors and warehousemen to have the manifest of loads placed inside the cars and trucks by veterinary personnel, before their sealing, to insure that these instructions were being followed (*48*, *49*, *50*). A variety of publications by the Association of American Railroads were utilized in observing the methods of loading, bracing, and blocking shipments of nonperishable subsistence; these included such matters as tight stowage, even height of the loads, and blocking doorways of full loads or bracing partial loads with bulkheads (or gates). Minimum carloads of canned subsistence were established at 60,000 pounds. At destination, the subsistence-carrying conveyances were inspected for condition, including the security of the seals, the quantity of ice in bunkers, the opening temperatures, evidences of improper loading practices, and any off condition of the products that might have been caused by neglect or other action by the shippers or carriers.

At the ports of embarkation and cargo ports, the Army Veterinary Service played an important role as advisers to the Transportation Corps in the outmovement of subsistence to the theaters overseas. Pursuant to AR 40–2055, port veterinarians were responsible for conducting the inspections of products before their loading on Army transports, chartered ships, or other vessels transporting meat and dairy products for the Army; also, they recommended and, wherever practicable, supervised the methods employed for correcting sanitary defects. Perishable subsistence, in particular, presented a major shipping problem, and, in 1943, the Office of the Chief of Transportation addressed a circular of instructions on some few aspects of the procedures and inspection responsibilities at the ports, as follows (*51*, *52*):

1. It has been brought to the attention of the Chief of Transportation that refrigerated cargo has been received at overseas destination in unusable condition. The storage history of the product prior to loading and the elapsed time of the movement will have an effect upon the condition of the product at destination. Any product which is not thoroughly frozen when loaded may be expected to deteriorate en route, because the refrigeration capacity of the carrier is not sufficient to complete the process of freezing and lower the product temperature. Proper attention needs to be given to stowage, for an even distribution of refrigeration throughout the load. Correctly designed and installed floor dunnage and wall stripping to prevent direct transfer of heat from those surfaces to the product are also very important.

2. Inspection of perishable subsistence at shipside, prior to loading in refrigerated cargo, should be made carefully to assure that the product is in proper condition for shipment. Frozen perishable subsistence should be in a hard-frozen condition, and any such product found at this time to be in a defrosted condition or showing any signs of softening shall be rejected and moved to storage for further freezing. The Office of the Quartermaster General, in Field Headquarters Administrative Memorandum No. 41, 22

April 1943, has issued instructions to assure arrival of frozen subsistence in proper condition at the ports.

* * * * * * *

6. It will be understood that the importance of this subject cannot be overemphasized when plans call for much of this perishable cargo to go into storage at destination for periods up to and exceeding ninety days.

Other paragraphs of this document set forth the recommended temperatures of the products at the time of loading and those desired in the refrigerated spaces in ships while en route.

The special conditions at ports, leading to food losses in the oversea stockpiles, included the squeezing pressure exerted by nets and slings, the shocks sustained as the cargo nets hit the pier or bottom of the ship's hold, and the rough handling by the stevedores who worked on top of the cases while the hold was being filled or who dropped or slammed them into a pile. Of course, there was always the constant problem of slow loading so that refrigerated cargo often thawed out or lost its chill on the piers; in some areas, ship loadings and unloadings were conducted at night to avoid the heat of the tropical sun, and inclement weather conditions disrupted or delayed loading schedules. However, one of the most common causes of damage to cases of subsistence and of outright food losses occurred from the use of cargo nets, in lieu of platform slings, to load or discharge products such as shell eggs, fresh fruits, and vegetables; also, frozen meats and poultry packed in wirebound wooden boxes fared poorly from the distortion and crushing effects of the nets. Since all shipping space seemed to beg filling, containers were placed under heavier loads or squeezed in between. During the voyages, there were the added factors of shifting cargo, damp salt air, and temperature changes. Cargo transferred from ships to lighters or landing craft received especially rough handling when the boats were in a rough sea. Unskilled native labor, unconcerned about the importance of the job, compounded the damage.

In-Storage Inspections

One of the more important classes of veterinary surveillance inspection procedures was the class 9 inspection, or the inspection of Army subsistence while in storage. Essentially, it was an innovation of the war period in regard to fresh products. In peacetime, practically no fresh meat and dairy products were stored longer than from a few days to 2 or 3 weeks, and any deterioration or spoilage could be uncovered during the inspection at time of issue. The quartermaster market center system was particularly concerned with the veterinary sanitary inspections of products in storage, but the quartermaster depots in the Zone of Interior lagged in recognizing their importance. The in-storage inspection was routinely regarded as a matter of command responsibility wherein the veterinary inspections would be conducted on specific request of the concerned accountable officers (*53*), but



FIGURE 97.—Veterinary in-storage inspections of subsistence at an Army depot in the United Kingdom, 1944.

more often—and this was particularly true for storage holdings of perishable foods by the quartermaster market centers in the Zone of Interior and of both perishable and nonperishable subsistence stores in the oversea theaters—the responsibility for conducting in-storage inspections was delegated to the Army Veterinary Service, and the latter scheduled its own workload for conducting such inspections (fig. 97). The in-storage inspections were conducted usually at 30-day intervals, for the purpose of conserving subsistence by timely recommending the utilization of products showing beginning signs of deterioration or of those items held longest in storage, and for the improvement of defective storage facilities and procedures. No subsistence was really nonperishable, even under ideal storage conditions, because all products undergo deterioration and harmful changes rendering them, in whole or in part, unfit for food purposes. Another in-storage inspection, but one closely related to food procurement inspection, was the inspection of canned subsistence before the expiration of the so-called recovery period (usually a year for practically all canned meats) during which the civilian contractors, pursuant to contract requirements, made replacements in kind or compensated the Army for losses incurred because of defective materials or workmanship or faulty cans; infrequently, contractors exempted themselves by granting invoice discounts of one-half of 1 percent to cover normal losses. Of course, during the war there was no recovery action on subsistence after it was shipped overseas.

The importance of in-storage inspections and the quantities of food involved can be appreciated by the fact that the Army could not procure its needs on a hand-to-mouth basis. Approximating the weight of the ration at 5 pounds of food per day per soldier and the maintenance of a 90-day supply level in the Zone of Interior and a 9-month supply which would assure uninterrupted deliveries of food to the theater troops, an estimate has been made that a military force approaching that of World War II would have to have on hand every day 11 billion pounds of food (*54*); to these operating stocks there would have to be added the production reserves for products of seasonable availability and the emergency reserves. A part of this daily stock was in transit, but the larger share was stored at various points along the chain of Army subsistence supply. Of this total quantity, 38 percent would be meat and dairy products, but meat and dairy products represented 60 percent of the cost of the Army ration.

Within the depots in the United States, the Army Veterinary Service generally encountered no serious losses among the canned meat and dairy products newly arriving from contractors' plants. Of course, there were shipments in which the railroad cars had been "humped" at a terminal, and the cases and cans were seriously damaged and bent during the unloading of the cars; the latter were set aside for special veterinary inspection, repacking, and early redistribution, generally to a nearby Army installation. A major reason for relatively low rates of subsistence losses was the fact that the depots resorted to the use of forklift trucks and other mechanical materiel-handling equipment. This, together with extensive utilization of pallets, constituted the most significant Quartermaster Corps development of the war in regard to the handling and storing of supplies and resulted in considerable savings of manpower, warehouse space, handling time, and damages over the older manual system. An unfortunate practice, however, was the tendency to develop piles which were too high, causing the cases of canned foods at the bottom to be crushed or collapsed. The hazards to safety of personnel by leaning or toppling stockpiles and overloading beyond the prescribed maximum weight for warehouse floors generally became the real reasons for stabilized stacking and for limiting the height of the stacks. During the war, the turnover of subsistence in the Zone of Interior depots was generally rapid so that the Army Veterinary Service encountered no serious problems with stock rotation. Overseas, to the extent that it was possible, stock rotation or policy for the issue of oldest stocks first generally was followed; obviously, only the newest and best on hand was selected for shipment with task forces or for long-time reserve storage. In order to maintain the proper fluidity (or prevent separation of the solids) in evaporated milk, the cases were turned over periodically.

As the result of the depot use of pallets, which were small wooden platforms constructed to provide clearance for the entry of the forks of the lift truck, quartermaster studies were made on the development of palletized

units of subsistence, and some thought was given to the requirement that civilian contractors should ship their products to the depots as palletized units. In the Pacific theaters, palletized unit loading of subsistence was advanced, and sledlike pallets were used to bring supplies ashore to the beaches during the combat phase. On Oahu, T.H., a veterinary officer developed a palletized unit load of canned soups, fruit juices, and other foods desirable or needed in the feeding of wounded patients that was used at frontline or beach first aid stations and hospitals. It must be recognized, however, that palletized loads of subsistence cases, whether held together by metal strapping or by adhesive, were difficult and costly to disassemble for inspection of the components and then to reassemble.

Actually, subsistence losses at the depots in the Zone of Interior were negligible only insofar as these concerned newly procured subsistence and its storage in warehouses. Losses and subsistence damage occurred when the depots, because of the lack of warehouse space, stored the canned foods in open or uncovered areas and in sheds roofed but without side walls. Infrequently, these stockpiles were not properly built on floor dunnage to protect against flooding, were tightly wrapped with tarpaulin without a peaked-roof structure to facilitate the drainage of rainwater and to provide air circulation, and were maintained under extremely adverse conditions of summer heat and freezing weather. Another feature of veterinary reports on subsistence losses in depots was their references to subsistence which, as excess to the needs of Army camps, was returned to depot stocks. Large quantities of these returned foods were found to be deteriorated or spoiled as the result of their age or mishandling in the camps. Other shipments were received from offshore Army bases, particularly from the Alaskan area after the Aleutian campaign. During 1943, more than 70,000 cases of field ration C were returned to the Columbus Army Service Forces Depot from the Newfoundland Base Command; 97 percent of the M-units (meat) in 40,000 cases were found to be sound and suitable for issue after reconditioning. Some returned shipments were freed of most of their spoiled foods before shipment from these bases, and others were not. At one or more depots, the Army Veterinary Service supervised reclamation operations and repacking crews to prepare the returned subsistence for redistribution in the Zone of Interior.

Most of the Army's supply of meat and dairy products that were handled by the quartermaster depot system were stored in Army facilities, and there was no large-scale commercial storage program such as was established for the warehousing of canned fruits and vegetables or by the quartermaster market centers for the holding of perishable subsistence in commercial cold storage plants. However, some canned meats, fish, evaporated milk, and dried eggs were placed in commercial dry storage warehouses, but the Office of the Quartermaster General did not encourage the inauguration of veterinary surveillance inspections over these stored items (*23*).

When, in early 1943, it became necessary to place considerable quantities of canned meat products in commercial storage, the Chicago Depot [which was accountable for these stores] became alarmed because these shipments were going in and out of warehouses without being checked upon, and sought approval of a plan for further Veterinary Corps inspection of the commercial storage stocks. The Office of the Quartermaster General replied [in February 1943], however, that since the meats stored in public warehouses were inspected before storage and usually remained in storage a relatively short time, the expense of routine inspections would be greater than the benefits. The practice of noninspection of such stock [and for sanitary condition of commercial warehouses] was followed for some time, although there was evidence that it was unwise. Toward the end of the year 1943 a practice of making spot inspections of canned meat stores shipped from commercial warehouses * * * to other depots or ports was adopted. The Depot also recommended that canned meats kept in commercial storage for extended periods should be given a spot inspection every 90 days. The spot inspection given prior to shipment was only to determine that shipping containers were in good condition and properly strapped.

Under the procedures which were set up with regard to the utilization of commercial warehousing, there was no inspectional program except that which the civilian storage contractors conducted for reporting overages, shortages, or damages, and their charges for recooperage of damage containers. These contractors were also authorized to determine whether damaged canned foods were causing an unsanitary condition in the warehouses and, if so, to destroy them.

Of course, there was little concern over in-storage inspections of Army canned products in the Zone of Interior because of their inherent stability or so-called storage life, and they were classified as nonperishable. Canned meats had excellent keeping qualities if stored at temperatures ranging from 40° to 70° F., for periods up to 4 or 5 years or for a somewhat shorter period of time if the canned meat products contained fruit or vegetable constituents. Where the temperatures fluctuated, and especially if it exceeded 90° F., the storage life was considerably shortened; alternate freezing and thawing of canned meats also shortened the storage life and seriously damaged the texture and palatability in those canned meats containing starchy products. It may be mentioned that the latter, and the canned evaporated milk as well, were not always sterile. Though this problem of sterility was actually one of production control at time of procurement, mention must be made that studies were made to determine safe processing (cooking) procedures for canned meats and that some real consideration was given to define a sterile evaporated milk product in Federal specifications.

The storage of perishable subsistence offered a variety of technical problems that were quite different from those encountered in the storage of canned food products. Of course, there were many of the same basic problems such as the economical use of floor space and stacking methods, lot identification, and sanitary practices in and about the cold storage plants, but these were compounded by the factors of frequent and rapid handling into and out of the refrigerated rooms, and of the holding temperature and

humidity, and keeping qualities of the products. The Army Veterinary Service conducted in-storage inspections at the Army cold storage plants located in the camps and stations and at the distribution points and commercial cold storage plants which received, stored, and handled perishable food for the quartermaster market center system. The inspections of refrigerated warehousing in the Army camps and stations were accomplished routinely as a part of station veterinary service. Beginning in January 1941, a construction program was begun by the War Department for building new cold storage plants at 46 Army camps, but a great many antiquated plants were continued in operation. Other camps had no cold storage plants, utilizing refrigerated railroad cars as points of issue to troops. In the latter instances, the station veterinarians set up a products surveillance inspection program that was closely related to the inspections of the products at the time of issue.

By the end of 1942, the need for long-range storage of perishable subsistence in the vicinity of the ports of embarkation and cargo ports where large stocks had to be maintained to load out refrigerator ships for oversea destinations had become obvious. Equally important was the factor of seasonable availability of products, such as eggs, butter, and cheese, which had to be stockpiled in order to be available to meet military needs for a whole year. Thus, beginning in early 1943, shell eggs, butter, and cheese were procured under long-range storage programs of the quartermaster market center system. Later in 1943, poultry and boneless beef were stored. Most of the products were placed in commercial cold storage plants and handled generally by the plant employees. All plants were subjected to a complete veterinary sanitary inspection before Army subsistence was stored in them, and the stored products were inspected routinely, at least once every 30 days.

Because perishable products of animal origin were stored in more than 500 cold storage plants in all sections of the country and involved as much as 400 million pounds at one time, it became very essential to determine that the products were properly stored and that correct temperatures and humidity were maintained and to assure that no lot deteriorated to such an extent that it could not be issued as fit for human consumption. This procedure was considered so valuable that detailed reports of the in-storage inspections were made routinely each month to the market center property officers. In this manner, subsistence showing evidence of beginning deterioration was placed in distribution channels before spoilage occurred. Fortunately, no great losses were experienced; in fact, as the result of the veterinary in-storage inspection and reporting procedures, losses encountered by the property officer, Field Headquarters, Perishable Subsistence Section, during the peak of buying and storing were less than five one-thousandths of 1 percent. Where losses occurred as the result of actions by plant owners, the contracting officers, of course, could initiate claims. The commercial plants were often in widely scattered locations, and, at times, plant operators undertook

to receive or ship products without proper notice to the inspecting veterinary personnel. Also, many of the establishments were antiquated and frequently experienced operating difficulties when attempts were made to convert the "chill space" into freezer units as the Army shifted emphasis to the use of frozen foods.

Inspection of refrigerated subsistence destined for oversea shipment emphasized the test of the product's sanitary condition and of the packing. Overall, the procedures for inspecting refrigerated subsistence involved a great deal of coordination between the market center, port, and service command veterinary personnel. For example, the products being shipped through the New York Port of Embarkation were stored, at one time, in 70 or more plants located outside of the immediate port area, in Philadelphia, Baltimore, Boston, and Syracuse. On call of the New York quartermaster market center, the veterinary personnel nearest to the cold storage plant inspected the carlot or truckload shipments which were moved direct to the ship loading docks and piers. A shipside sanitary inspection was conducted also, where products—if for some reason or other not in proper condition—could be turned back. Sometimes, a 3- to 5-day period of continuous operations was required to load out a "reefer" ship—these veterinary inspectional procedures being conducted throughout. The loading-out inspection of nonperishable subsistence was just as complete but did not require as close coordination and constant veterinary supervision. Of course, usually more than one ship was being loaded out at any given time. The same filler (or backup storage) and port inspectional activities were operated at the other ports of embarkation, and at San Francisco the loadings became a joint Army-Navy operation in which storage holdings and preshipment inspections were conducted by the Army Veterinary Service regardless of the destinations of the ships. In the Central Pacific Area, the Army furnished the food from its storage holdings, and the Navy the shipping, to ration all Armed Forces personnel in the combat areas and on the advanced island bases.

Overseas, the in-storage inspections concerned subsistence which was vastly different from that inspected at the depots, distribution points, commercial dry storage warehouses, and cold storage plants in the Zone of Interior. For example, it was several months older, had been handled as many as 15 to 50 times (sometimes by native laborers, and frequently crushed and squeezed), transported under suboptimal conditions, and then exposed to varying climatic conditions (in the arctic cold or tropical heat and where it was dry or humid) and stored in the open or in temporary warehouses and portable refrigerators (fig. 98). Some stockpiles of canned subsistence were maintained a year or more before they were drawn upon, especially the packed field rations which were held for much longer periods of time. Under suboptimal conditions of storage in the theaters, large quantities of these stockpiles became useless or spoiled long before they should have. The wastes of war became tremendous, because this spoilage occurred in sub-



FIGURE 98.—Quartermaster refrigerated storage point on Tinian, 1945. Note the protective roof and the water storage tanks.

sistence items which were of high quality, packed in containers specially designed for food protection, and transported over long distances (fig. 99). "Even though the use of manpower, materials, and the time necessary to provide suitable storage overseas are critical considerations in a theater of operations, the fact remains that unless they are expended in assuring good subsistence, items will spoil. The welfare of the troops, which depends to a large extent upon the delivery of the supplies in the proper condition and at the proper time, will suffer correspondingly" (*54*). Fortunately, there always seemed to be replacement subsistence available as well as the means for transporting it from the major areas of supply, and, thus, the losses that occurred never had a serious effect on any particular campaign or battle during the war. However, opinions prevail that the U.S. forces on Bataan peninsula would have fought a longer defensive campaign against the Japanese invaders in the Philippines in 1941–42 if they had been better rationed (*55*); after that time, there were relatively few places where large numbers of troops, isolated by enemy action, could not be supplied by airdrop.

Matters relating to subsistence storage, just as the care of Army horses and mules, was a phase of preventive military veterinary medicine in which



FIGURE 99.—Subsistence stacked on the ground, Ledo area, India. Stacks such as these were subjected to weeks of tropical rains, and it is not surprising that subsistence losses were huge.

veterinary officers acted only as advisers to those who were accountable. Recommendations that were made to lessen or prevent food deterioration and spoilage required the early recognition of bacterial, chemical, and other symptomatic changes of beginning losses, followed by technical supervision of the actual procedures which were taken to segregate the spoiled from the sound supplies and to prevent further deterioration or losses. A great many technical details were involved in the professional conduct of these veterinary in-storage inspections. These included knowledge of the protectiveness of the various types of containers, the nature of so-called epidemic spoilage in the piles, the effects of environmental conditions, the viral growths in, and chemical reactions of, foods as well as insect infestations and rodent damages, and the sanitary features of storage construction and materiel not excluding such matters as selection of sites, dunnage, stacking size and arrangement, and protection from pilferage and enemy attack.

Another feature of subsistence supply to the Pacific theaters and probably elsewhere was that refrigeration equipment for storing perishable products was not fully developed nor adequate in availability. It lagged behind the growing emphasis that was placed on the oversea supply of fresh frozen meat and dairy products in lieu of canned or nonperishable items. The China-Burma-India theater had almost no refrigerated facilities. There was more than one reported instance of stockpiling incoming shipments of perish-

able foods under a tarpaulin and of issing the items which had thawed out; what could not be force issued, within 2 to 3 days, spoiled. Individual unit or messhall refrigerators on some of the smaller island bases became points of quartermaster holdings of perishable food supplies.

Inspection Prior to Issue

Among the several classes of veterinary food surveillance inspections, class 7 inspection, conducted on subsistence at the time of quartermaster issue to troops, was the most important. It included inspections of Government-owned foods sold to the Army Exchange Service, officers messes, or individuals who were authorized to make such purchases, or at the time of issue to Navy and other consuming agencies. This was the final veterinary sanitary inspection given to food. It marked the final inspection at the end of the Quartermaster Corps chain of food supply; insofar as it was practical, the products were inspected piece by piece. Along with this inspection, veterinary officers supervised the maintenance of sanitation that would be observed in the containers and vehicles which were utilized by the units in transporting the issued rations to their messhalls. The units themselves were responsible for providing covered vehicles, clean paulins, and other devices which would fully protect the issued foods against sun, heat, dust, rain, insects, and other damaging or contaminating agencies.

At the individual Army camps in the Zone of Interior, no major problems arose concerning the issue of canned foods, though issues sometimes included items that otherwise were not suitable for shipment from the Zone of Interior to the oversea theaters, such as rusty cans, old packs, and improper packing. On the other hand, the technical supervision of issues of perishable products was a greater problem; furthermore, most camps did not have sufficient refrigerated space when the camp troop populations approached their normal or maximum levels. Camps, at which combat divisions were organized and trained for oversea deployment, frequently utilized incoming refrigerated cars at railroad sidings for issue points. In the handling of food products at the Army cold storage plants that were constructed in the camps and airbases, the station veterinary personnel acted as advisers to the local quartermaster on the methods of stacking and on the temperature and storage life of the various items. Generally, these Army plants in the Zone of Interior were designed to include a freezer room maintained at 10° F. for holding frozen foods, a chill room (at 32° F.) where fresh meats and products were stored pending their issue, and cooler rooms (at 35° F.) for storing shell eggs and dairy products, and another cooler room for holding fresh fruits and vegetables. The larger plants also had ventilated storage rooms (at 50° to 60° F.) and a special refrigerated room where the perishable foods were broken down for quick issue to units. This classification of refrigerated storage was necessarily modified as the war progressed, because greater use was being made of frozen products than of those in a chilled

state; refrigerated plant mechanisms were overburdened in the conversion from chilled storage to the freezer holding of products. Of course, there were a number of technicalities regarding this, not excluding the requirement that beef, lamb, and veal carcasses if received in a frozen condition were required to be defrosted before their issue to ration breakdown units (*56*).

At the issue or ration breakdown points, the veterinary inspection problems were variable, dependent to some extent upon the type of rations being provided to the troops. During World War II, reference was made to as many as 12 types of field rations (*15*, *55*). The field ration, type A, which was issued in the Zone of Interior, was an issue in kind, following a prescribed menu schedule, as compared to the garrison ration where the issues of components were made on the basis of monetary credits, that was used in the peacetime Army; the changeover to field ration A was made in the summer of 1941. Ordinarily, this ration type included fresh fruits and vegetables, fresh meats, fluid milk, and other commodities which regularly were not found in any other field ration. Field ration B was issued overseas in the theater commands in the manner that the A-ration was used in the Zone of Interior; its component items (or variety) generally were the same except that those of a perishable nature, requiring refrigerated transportation and storage facilities, were replaced by nonperishable products (canned or dehydrated). Generally, the theater commands were provided with refrigerated subsistence, and many procured fresh foods locally so that usually the issues made there included a mixture of the A- and B-ration components.

Then there were C- and D-rations which were developed before the war as so-called combat rations and individual emergency or survival types. The D-ration, once called the Logan bar (in 1937), of course, was a 4-ounce chocolate bar; three bars constituted a day's ration. Old packs of D-rations, under conditions of storage in the Tropics at temperatures approaching the melting point (120° F.) of the chocolate, tended to whiten, because of the separation out of its fat constituents, and finally to crumble into a tasteless powder; it was not completely protectively wrapped against insect contamination in the Tropics; also, molding of the D-ration bar was observed. The C-ration, packed eight rations per case, included three M- (or meat) units and three B- (or biscuit) units in cans and laminated bags of accessories such as toilet paper, cigarettes, chewing gum, and water purification tablets. By the end of the war, 10 different canned meats were grouped into six different menus for the C-ration, and production was begun on the division of the meat contents of the cans into chunk-sized pieces (about ¾-inch cubed) rather than into ground, potted style.

During the earlier part of the war, reference was made also to the new mountain and jungle ration types (essentially 4-in-1 rations) and the 5-in-1 ration for use by armored tank crews, but these were replaced later by the 10-in-1 ration, suitable for the group feeding of 10 men for 1 day when B-rations were not supplied. The original single or individual ration package

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for paratroopers was modified and became the K-ration. Both of these contained canned meat and dairy components. There were also a number of survival or emergency types: Liferaft ration for the Army Air Forces, the parachute emergency ration for the Army Air Forces, the airborne lifeboat ration, and such so-called supplementary types as the hospital ration supplement, aid station beverage pack, kitchen spice pack, and the aircrew lunch for in-flight feeding. It may be added that the assembly of rations, originally undertaken at Army quartermaster depots and later by civilian contractors, was conducted under the supervision of the Veterinary Corps. Before the contracts were awarded, the commercial establishments were inspected for sanitary and operating requirements.

Ordinarily, the Army Veterinary Service did not inspect the meat and dairy components of the rations after their issue from quartermaster distribution points; that is, in the troop messes. Though sanitary inspections of messes were the assigned responsibilities of medical inspectors and unit surgeons, much use was made of Veterinary Corps officers in the combat divisions and at Army Air Forces bases during World War II to conduct these inspections. In fact, one air force in the Zone of Interior merged its medical inspectors with, and under the supervision of, base veterinarians. Procedures for conducting such inspections were outlined in various Army publications that included descriptions on the factors which would be utilized by inspectors when determining the soundness and wholesomeness of the meat and dairy products received at the messes (*57*). Other sanitary inspection features were the condition of mess buildings, food storage, cleaning of utensils and disposal of wastes, menus and food serving, physical examination of foodhandlers, and training status of mess personnel in mess sanitation, it being emphasized that "when improperly handled and stored, meat and meat products are subject to rapid deterioration and during the time products remain in the company kitchens, messes, or refrigerators, very careful supervision should be exercised by medical officers to assure the use of only sanitary products." Actually, unit commanders alone were responsible for mess sanitation and for the enforcement of sanitary regulations, but in this they were guided by the recommendations made by the unit surgeons, medical inspectors, or veterinary officers who were conducting the inspections (*58*).

Only in a few known instances were meat and dairy products, previously passed as acceptable by veterinary officers at issue points, rejected by unit surgeons and medical inspectors at the troop messhalls. In the Southwest Pacific Area, some condemnations were regarded as being unwarranted, and steps were taken to discontinue this waste of foods after their issue to units. In one Pacific area, the original "trier" holes made in cured and smoked hams by the Veterinary Corps officers at commercial meat establishments were being scrutinized as evidences of ham skipper infestations and resulted in unwarranted condemnations of this product by troop messes. The molding

of bacon and ham was the frequent cause of complaints (though it was readily corrected by proper trimming or by using a vinegar wash in the messes), but any or all complaints, regardless of their nature, were reviewed at the distribution points to determine whether the remaining products were sound and wholesome for continued issue. It must be mentioned that mess officers of units and organizations also had responsibility to see that all foods received in the messes were clean and wholesome and in full quantity and that mess sergeants, permanent kitchen personnel, cooks, and bakers were routinely trained in Quartermaster Corps schools in the proper preparation and handling of meat and dairy products.

FOOD PROTECTION AND CONSERVATION

Restating its objectives for protecting the health of troops against their consuming deleterious foods and for safeguarding the interests of the Government, military meat and dairy hygiene included a number of operations and inspectional services which are not identifiable with any particular one of the foregoing classes of inspections. Packing and packaging, for example, was recognized as a matter for procurement inspection to take care of, but this was not a problem of inspection until the subsistence was entered into military traffic and then stored for varying periods of time under adverse environmental conditions. Also, there were problems of subsistence salvage and the food conservation programs. The Army Veterinary Service also assisted in the investigation of foodborne diseases in troops, and closely related to these investigations were the antibiological warfare programs and the veterinary considerations of protecting and decontaminating subsistence in the event of chemical warfare.

Packing and Marking, and Packaging and Labeling

Subsistence packaging and packing was an important feature of veterinary food inspection operations during World War II; it was directly related to the food losses that were experienced in the oversea theaters. Though considerable improvements were made in packaging and packing materiel and techniques before the end of the war, there seemed to be nothing that could withstand, or be sufficiently protective against, all of the rough handling, exposures to adverse environmental conditions, and insect-rodent contamination. The term "packaging" referred to the immediate container for the products (such as cans for meat and sausage casings) whereas the packing was the outside shipping container—the barrel, box, or crate. The latter were marked, while the markings on packages were designated labels. Generally, inspections of these containers for meat and dairy products were conducted by the Army Veterinary Service in conjunction with its products procurement inspections, but the main interest in them was manifested overseas when the products arrived and were stored. Before World War II, little or no attention

was directed to the military requirements for adequate subsistence protection. At the beginning of the war, commercial packaging and packing was generally acceptable; in regard to this, the following was noted (*15*):

> Industry's peacetime packaging efforts were based largely on eye appeal and low cost. The fact that commercial products were consumed within a few months and that handling in transit was closely controlled eliminated any need for more than a minimum amount of protective packaging.
>
> No Army specifications covering packaging and packing for overseas shipment existed at the outbreak of the war. Federal specifications covered packs for commercial use only, and early procurements of subsistence were packaged and packed accordingly. Flexible packaging materials, such as cellophane and coated or waxed glassine, offered little moisture protection, and industry had given slight attention to sealing bags and cartons tightly. Corrugated fiber boxes were generally used as shipping cases.
>
> These commercial techniques, suitable to domestic distribution, were inadequate in the field. Early shipments of canned goods packed in commercial containers arrived at overseas destinations with cases broken open and the cans scattered loose in the holds of ships and over docks. Furthermore, packages broke and spilled their contents, and foods in flexible packages picked up moisture. Subsistence losses due to failure of packaging and packing materials at the beginning of the war were substantial.

In the wartime trends for improved packaging and packing, the inspection of these came to be an integral part of the veterinary food procurement inspections of meat and dairy products, because without proper packaging and packing all the other work of subsistence inspection became valueless. Also, proper packaging and packing was a matter of sanitation, because without it, subsistence became contaminated, infested, damaged, and inedible. Wherever the acceptance testing for products was made, then the acceptability of packaging and packing was also determined, usually inside the commercial food establishments. A great many detailed specification and inspection requirements were imposed on Army subsistence which was destined for oversea shipment; these included such factors as design, workmanship, and materiel; number and application of straps or wires, adhesive, nails and nailing, liners, and weight and cube measurement; and the presence of the box manufacturer's compliance stamp. After the inspection for acceptance or compliance with the pertinent specifications and contract, the packaging and packing were reinspected for general condition, along with the sanitary inspection of the contents or products, at every shipping point and periodically during storage. Nearly all packaging and packing defects or faults resulted in the development of unsanitary environments and in the losses or contamination of products.

The greatest packaging defect was the tin can container itself, resulting in the losses of large quantities of foods in the oversea theaters. There were many factors involved, not excluding poor workmanship which was evident by improper sealing (or crimping), buckled cans, and poorly cleaned (or grease-covered) cans. However, these were the least frequent causes of canned food losses; another factor was the interior lining (or lacquer) of the can—this not being as completely protective to prevent product-tin reactions

so that products showed discolorations, and pinholing of the cans occurred. More important factors were the structural design and size of the cans, the tin composition of the can and solders, and the labels. The long rectangular cans of luncheon meat, and the soldered, snap-on cans of evaporated milk were a problem common to all ration dumps that included these items; almost invariably, no case of these products arrived at final issue points which did not include seriously bent cans—some already with spoiled product that had spewed or spilled over the other cans in the same case. The packing of the cans in wooden cases did not prevent, only minimized the damage to the long, rectangular cans which occurred incident to haphazard handling during transshipment. Of course, the use of wooden cases introduced another factor, as was observed in canned corned beef of South American origin; namely, poor workmanship evidenced by the penetration of the cans by nails. This became so serious in certain shipments as to raise questions of possible sabotage. Another type of can, having a serious inherent defect and used for packaging molasses and powders, was the large container with the plugged-in lid (friction top); damage or denting of the body of the can frequently resulted in the flipping of the lids and the spilling or exposure of contents.

Of course, the programs that were taken in the Zone of Interior to conserve the Nation's tin supply resulted in an inferior can (with thinner tin plating, or electrolyte plate, and reduced tin content of solders) which rusted under the conditions that were encountered in the theaters. Paper can labels (and possibly the glues) and ordinary cardboard cartons that retained the moisture hastened the rusting processes on the cans, particularly under hot, humid climatic conditions. These defects were lessened when the Army required precoated or outside-lacquered cans and later turned to precoated cans and demanded, as substitution for the paper labels, the identification of the canned product by a lithographed, embossed, or ink-stamped statement on the side or end of the can. The precoating, with olive-drab coloring, accomplished in commercial establishments, as contrasted with precoating with a clear lacquer, which was done by the can manufacturer, also satisfied the military needs for camouflage because there was little else that exposed concealed positions or ration dumps as clearly as the tin can reflection of sunlight.

Failures or defects of the packing containers also were numerous and resulted in approximately the same large quantities of food losses as did improper and inadequate packaging. Commercial corrugated-fiber boxes were inadequately protective for oversea shipments, but the initial subsistence supply to nearly all theater commands was made in this kind of case. Sometimes, wirebound or nailed wooden boxes were used for overpacking, but this procedure soon was discontinued except in the instance of foods packaged in glass containers. By the winter of 1942–43, the Quartermaster Corps was referring to the packing of subsistence in a carton made of weatherproof fiberboard, containing a lamination or layer of asphalt (or tar) which was resistant to wetting, and to a new, solid-fiber V-board box. The latter was

of several grades; the V–1 grade, being the best, was resistant to moisture and retained its strength when wet and was widely utilized for packing Army boneless beef. Unfortunately, experiences with the new V-board box indicated that corrosion occurred on the exterior of the cans which was believed caused by high moisture content of the fiberboard or chemical constituent of the laminating adhesive (*59*). Whether shipped in wooden boxes or fiber cartons, subsistence supplies were bound by strapping that reduced the need of thicker box lumber and made possible the greater use of fiber containers. Improper application of the strapping, tensioning or looseness, and poor sealing of the strap ends caused some packing failures. However much as was accomplished in the development of packing materiel and procedures, the fact remained that subsistence did not become indestructible or nonperishable. Though packaging defects were moderately corrected, there remained the constant factor of human carelessness in handling, shipping, and storing foods.

Just as packaging and packing became major points of veterinary subsistence inspection during the war, so did labeling and marking. Labeling referred to the identity of product, weight, manufacturer, and date of manufacture on the food package; marking, on the other hand, pertained to the outside packing case to identify the contents and gave shipping and handling instructions. The problem with paper labels on cans, as contributing to the rusting condition on canned foods, was noted previously, but it may be noted that the same moisture that caused the rusting of cans also resulted in the complete loss of labels from the cans, and thus no identification of contents remained. Commercial-type paper labels were continued on Army subsistence procured for use in the Zone of Interior, but, soon after the war started, specifications and contractual documents provided for imprinting or embossing labeling information on the cans, particularly the nature of the contents, that were destined for oversea supply. Canned milk, salmon, and a few other products, however, continued to be procured with paper labeling. During the initial packaging and packing, veterinary inspections were made of the placement, legibility, size, and permanence of the labels and marking: of the nomenclature of products, together with the number, size or weight averages of contents, weights (net, tare, and gross) and cubage, contractor, date of packing, and the Quartermaster crescent mark for subsistence items: and of other information as was required.

Subsistence Salvage and Food Conservation

The return of deteriorated subsistence into a suitable condition for distribution and issue to troops may be regarded as subsistence salvage. It was conducted spontaneously along the chain of Army food supply, at depots, at ports, and even at ration issue dumps, since there was no quartermaster unit or organization such as had been developed for shoe repair or salvaging of scrap metals. Invariably, it was set up under veterinary supervision whenever



FIGURE 100.—Veterinary food salvage operations at a quartermaster depot in the European theater.

any sizable quantities of food showed beginning signs of deterioration, such as in a component of the C-ration cases or where the outside packing containers were so damaged that further shipment, storage, or even issue was impossible (fig. 100). It had for its objective the separation of spoiled subsistence from the good, which was repacked and continued in the Army supply system, so that complete losses of given packs or lots were minimized. Canned subsistence was more frequently salvaged than was the perishable type. Subsistence salvage during the war became an extensive operation in many theaters and in the Zone of Interior.

Butter, for example, that had been stored on a Central Pacific island base for a long period of time under conditions far below optimum and had developed a mold growth on the interior surface of the liners, was renovated by a local dairy plant. Various attempts were made also to set up processing lines at oversea cold storage installations for removing excess mold growths and slime on the exterior of bacon and hams, but this occurred early in the war period. Later, these products were usually placed in freezer storage, if available and if the bacon and hams were going into long-term storage. It may be mentioned that these cured and smoked products and ham were specially prepared, sometimes covered with asphalt or packed in salt, and specially boxed so that they could be kept at outside temperatures, but, by

the end of the war, these products were regarded generally to be as perishable as fresh meats. Probably, the most commonly salvaged fresh food product was shell eggs; usually however, this operation was accomplished at the issue points where the problem was solved either by veterinary personnel inspecting (or candling) the eggs individually (which was done at the smaller bases) or by the prior determination of the rate of egg spoilage and egg breakage and recommendation for a proportionate overissue of the eggs to the messhalls where the mess personnel did their own sorting.

Both shell eggs and fresh fruits and vegetables were affected by the so-called epidemic spoilage, in which one broken egg or one rotten, slimy head of lettuce became the point of spread of losses through the case and then downward through contiguous cases. There was no stopping this spread of spoilage as long as such lots were kept in storage, but proper, careful handling of these products at Transportation Corps ports and oversea destinations and at Quartermaster Corps storage and issue points would have prevented many of these losses. Salvage operations on whole shipments of frozen boneless beef in fiberboard boxes and on other items that were wetted by seawater, bilge water, and dirty harbor water because of enemy attacks on a ship, required particular care, as did those relating to cases of food that were contaminated by the slime dripping from the uppermost defrosted layers of a lot or load of subsistence in refrigerated plants, in railroad cars, or in ships whose refrigeration equipment had failed. It was directed in one theater of operations that Veterinary Corps officers would exercise discretion and high standards of professional opinion in their salvage activities, taking into consideration, in appropriate order, both the medical aspects that would proceed to the one extreme of complete condemnations to protect troop health, and the quartermaster aspects that would regard condemnations of contaminated, and threatened contaminations of, foods as only an adverse cutback into the command's supply.

Stockpiles of canned subsistence, particularly those of a fluid consistency such as evaporated milk and those whose contents had liquified during their spoilage, which spewed over the interior of the cases when the affected cans burst, suffered the same epidemic spoilage as did shell eggs in cold storage. Overseas, any subsistence salvage operation was difficult to properly establish and maintain because of shortages in numbers of availability of personnel, equipment, and cleansing agents. The major problem was that there were no boxes for repacking the canned products even after they were cleaned. The repacking of canned foods in cloth sacks was unsuccessful, as was the so-called loose-can issue to troops.

There was no recorded instance of the utilization of fumigants to exterminate insects and mites in the oversea stockpiles.

In the Zone of Interior, food salvage operations at depots became a major veterinary inspection activity during the last years of the war period, when large quantities of subsistence were returned from offshore bases or were

returned as surplus to the needs of nearby Army camps and airbases. Possibly the most expansive of these operations related to the foods returned from the Alaskan-Aleutian area; the depot veterinarian at the Utah (Ogden) Army Service Forces Depot reported on the salvage inspections of 420 carloads or 35 million pounds of canned meat and dairy products, with losses totaling 8 percent for leaker cans, swellers, springers, damaged, and badly rusted or seriously dented cans. This covered the period from 1944 to the fall of 1945. At the Columbus Army Service Forces Depot, Columbus, Ohio, the depot veterinarian described this salvage program as follows:

In the last quarter of 1944 a reconditioning inspection of C-ration returned from off-shore bases has become a new and important subsistence activity at the Depot. Lots, packed as early as 1940, have been included in returned shipments from ports of debarkation. The reconditioning of this item is a laborious and time-consuming operation. To facilitate inspection an initial screening is done at box opening on a conveyor. Cans are then wiped clean and derusted with steel wool. The necessary individual manipulation in can cleaning makes it possible to accomplish a piece inspection. No borderline cases are accepted. The net value of an individual unit or a ration is so slight, as compared with its significance to an ultimate soldier consumer, that deliberations in favor of extreme economy are not justified. In spite of severe inspection the average percentage of returned C-ration items during the period of October through December 1944 was only .013% of the total pounds reconditioned. The loss in the bread and confection unit exceeds that of meat foods. Cleaning, reboxing, and reestablishing equality of the pack is more of a justification for the operation than is the incidence of spoilage. The low spoilage rate in this item speaks well for the original processing methods as well as the durability of the containers. Laboratory examinations of some lots packed in 1941 or shipments recovered from transports damaged in convoy (possibly salvaged out of sunken ships) has revealed "sound edibility" of all numerous samples submitted.

This procedure for salvaging foods was only one of several accepted procedures in the much larger program of food conservation. Another procedure was the "forced issue," or the issue of subsistence stores in larger than prescribed quantities if such stores were shown to be deteriorating and such issue would prevent losses. Actually, large quantities of subsistence were saved in this manner, but yet larger amounts were thrown away. The real fact was that the estimated losses for 1943 in the subsistence which was sent overseas to the North African, Southwest and South Pacific, North Atlantic, and European bases and theaters were set at $150 million and quantitatively exceeded their consumption and reserve requirements by 21 percent: it was estimated further that possibly 400 million rations would have to be sent to replace the estimated losses of 1944. Referring to these data and indirectly to Veterinary Corps reports of meat and dairy hygiene inspections that were recording these subsistence losses, the Chief of Staff, U.S. Army, directed requests to at least two theater commanders, as follows (*60*, *61*):

* * * make every effort to reduce subsistence losses in your theater to an absolute minimum. There are times when over-issues of subsistence are necessary because of some particularly strenuous operation, but over-issues do not account for more than a small portion of losses. According to advices I have received the main causes of losses are

pilferage, rough handling, lack of ventilation, unorganized piling, and a number of other controllable causes.

Accompanying this letter is a statement of the situation and the steps which so far have been taken, by Army Service Forces, Washington, D.C., to correct the situation so far as it lies within the control of authorities here. I wish, therefore, that you give this matter your personal attention to see that supply discipline is enforced and that controllable losses are held as low as possible.

In most oversea areas, theater commanders were well aware of the benefits of food conservation programs that were taking place. Probably, the Asiatic-Pacific theaters were more aware of this than any other, because in no other theater were there the extensive food losses, the adverse environmental conditions and tropical climate, and the shortages in materiel. What the Army Veterinary Service was attempting to accomplish, in regard to the transportation of subsistence, its handling, and storage, became topical subjects in a variety of official letters, memorandums, circulars, and publications which were addressed or disseminated through regular command channels of communications from the respective theater headquarters level, and these became the basis for the food conserving practices that were set up within the veterinary classes of surveillance inspection procedures.

Food Poisoning and Foodborne Diseases

The experiences with food poisoning and foodborne diseases in the Army during World War II was a practical test of the importance of mess sanitation, and, insofar as the Army Veterinary Service was concerned, these experiences only proved that the major sanitary defects along the entire chain of Army subsistence supply from the civilian contractor to the consumer troops, particularly that of meat and dairy products, existed in the messhalls or beyond the place of veterinary class 7 inspection. Actually, there is no record that foods, both meat and dairy products and foods other than of animal origin, which were issued under Veterinary Corps supervision, were the cause of food poisoning and foodborne diseases as a result of their being unsound, unwholesome, or contaminated at the time of their issue. Of course, there were outbreaks; one survey pointed to at least 190 outbreaks involving 22,364 reported cases of illness (*62*), but the causes were generally ascribed to messhall practices and sanitation and to uninspected foods.[2] Furthermore, no scandalous inquiries like the embalmed-beef scandal of the Spanish-American War occurred. In the two world wars, the Army Veterinary Service, along the entire Army's subsistence supply chain, was inspecting and rejecting large

[2] Of this number of outbreaks, Dack selected 76 reported outbreaks as highly suggestive of staphylococcus food poisoning involving 14,214 men, 6 as suggestive of *Streptococcus faecalis* food infection involving 1,015 men, and 4 as botulism involving 34 men, of which number 12 died. Regarding the botulism outbreaks, the regular Army food supply was not involved; one originated with lend-lease supplied canned beets of Australian origin and the others from home-preserved foods. The outbreaks occurred more often where there was less cause for their occurrence; thus, in the Zone of Interior, outbreaks were reported more often than in any oversea theater where messhall facilities were comparatively at lower levels of efficiency, and the largest single outbreak occurred at a named hospital mess in the Zone of Interior and involved 1,637 cases.

quantities of food for improper grade or sanitary qualities; this resulted in the "best and healthiest fed" Army of modern times.

In this Army its food animals were inspected at the time of slaughter, its canned foods were generally sterile, its fresh milk supply originated from tuberculosis-free dairy herds and was pasteurized, its cheese was aged for 60 days, and later for 90 days before issue, to prevent the dissemination of typhoid fever and brucellosis (*63*). Bacteriological standards, particularly in regard to *Escherichia coli*, *Salmonella* sp., and other pathogens, were established for many foods; and pork products which were normally used without need for further preparation in the messhalls were free of *Trichinella spiralis*. Also, food containers and cooking utensils that were cadmium plated, and galvanized and zinc-coated mess gear (meat cans and cups, M1942) were gradually withdrawn from supply to the messhalls and soldiers or were restricted in their uses, in order either to prevent incidents of cadmium, zinc, and antimony poisoning or to elminate equipment which, with deep scratches of soft metals, readily corroded (or rusted) and had hard-to-clean surfaces. Of course, cleaned motor oil and grease cans were particularly dangerous for storing or cooking foods because of their lead lining. There was no record to indicate a lessened efficiency of troops in campaign or the disruption in assault operations as consequences of food poisoning or foodborne diseases.

The various aspects of food poisoning and foodborne diseases in troops were accorded the same attention by the Army Veterinary Service as it gave to the diseases of military animals. In troops, as in animals, the food ration was recognized as the cause of diseases either because it failed to provide adequate quantities of proper food constituents or because the food served as an agent for transmitting causative viral organisms from one human being to another and from animals, and as a carrier vehicle for poisons; also, certain foods themselves are poisonous, such as poisonous fish and poisonous plants. In a great number of the outbreaks that occurred, Veterinary Corps officers were requested by the concerned unit surgeons and medical officers to participate in the epidemiological investigations; in several theater commands, various letter directives and other publications set forth the administrative details for such investigations to include the veterinary considerations. The importance and frequency of these investigations were recognized particularly in the oversea theaters. The procedures which were established in the Central Pacific Area eventually became the pattern used in the publications of the Army for defining the professional veterinary aspects of conducting all investigations (*64*, *65*, *66*, *67*).

Antibiological Warfare and Food Protection in Chemical Warfare

The veterinary aspects of antibiological warfare and the defenses against chemical attack regarding animals were generally well evaluated before World War II, but those in regard to the food supply received only passing



FIGURE 101.—Training and equipping Veterinary Corps personnel at quartermaster depots in the European theater to handle subsistence that would be contaminated in the event of enemy use of chemical warfare agents.

attention. Actually, that any deliberate biological and chemical contaminations of foods were militarily important had been variously described from one extreme to the other. Fortunately, there was never any real field test during World War II as to the medical effects of biological and chemical warfare that would involve the Army's food supply; on the other hand, definitive defensive measures or preparedness programs were developed (fig. 101).

Early in 1944, for the stated reason that the enemy then could be considering biological warfare as a sort of desperation action, the oversea theaters were advised on certain defensive measures which they would adopt, if the situation so warranted; these measures were identifiable with those already operational in the Central Pacific Area (*68*) (fig. 102). In the interim, precautionary measures were established in the Zone of Interior. Thus, in March 1942, the Surgeon General's Office was advised that procedures should be taken to guard against the sabotage of meats, utilizing the veterinary personnel who were already performing inspection duties in commercial food establishments. The reports of extraneous material in meats being prepared for canning were causes for conducting investigations of suspected sabotage, although similar conditions as they had occurred in peacetime were only the result of normal operating mistakes or carelessness. These probably occurred more frequently along production lines operating at above-normal levels and



FIGURE 102.—Veterinary food-security supervisors assigned to duty in a commercial food establishment in the Hawaiian Islands to insure the safeness and cleanliness of locally produced food products which were consumed in large amounts by military personnel.

where the establishments were employing new, inexperienced personnel. As an example, the separation of canning lines in meat plants from those lines where glass containers were being filled removed further difficulties of meats being found with fragments of broken glass. At one time, The Quartermaster General questioned the award of subsistence contracts to establishments which were owned or operated by resident enemy aliens in the United States. In February 1944, the War Department, recognizing that the fluid milk supply was a particularly good medium for the dissemination of disease among military installations and the nearby civilian plants which were engaged in war production, requested Veterinary Corps officers to report on threatened or suspected subversive activities just as they were doing on meat production (*69*). Conducting security measures within the establishments in which veterinary class 3 inspection personnel were located was made more difficult after 1943, when, against original recommendations by the Surgeon General's Office, these establishments were authorized to employ prisoners of war as laborers.

Comparable with the wartime problems of protecting the Army food supplies against potential enemy uses of biological warfare agents, there were the veterinary considerations for detecting, protecting, and decontaminating foods which might have been exposed to an enemy chemical warfare attack. Of course, varying classifications existed on the many kinds of war gases, screening smokes, and incendiaries, and a great many factors necessarily entered into discussions on the specific measures that were to be taken with respect to the handling of exposed foods. For example, the food products in themselves might not be affected, but the outside containers might be contaminated so as to be dangerous for personnel to handle or contact. Fortunately, there were no chemical warfare attacks on the Army food supplies so that the various means and methods that were developed before and during World War II were untested. Most elemental of these developments was the designation of the Army Veterinary Service to determine the safeness of foods after their exposure to chemical warfare agents and the definition of relationships with the Chemical Warfare Service, as follows (*70*):

> The officers of the Veterinary Corps will be called on to decide whether or not food is suitable to be used for human consumption, and since considerable danger to human life, as well as economic loss is involved, it is necessary that the decision be correct. Without a knowledge of what the chemical agents may do or may not do, it is not possible to arrive at a decision and food may needlessly be destroyed or dangerous food may be sent out to troops. In most cases the tendency will be to err on the safe side, but occasions may arrive when it is necessary to use the supplies and a knowledge of adequate decontamination procedures will make a great deal of difference.
>
> * * * [Also, the Veterinary Corps officer will have to] distinguish between dangerous food and food which may be adequately decontaminated and used.
>
> Protection is provided by that type of wrapping [or food packaging and packing] material used under the specification set up by the Quartermaster Corps, and the Chemical Warfare Service provides the information as to the adequacy of this protection. The Quartermaster is also responsible for matters of protection during transportation up to the distribution point. When decontamination is undertaken, it should be left up to the Chemical Warfare Service to provide the ways and means of doing it. The function of the Medical Department Officers is only to advise and decide whether the foodstuff in question is safe for the use of troops.

During the war, special courses of training and instruction on the veterinary aspects of chemical warfare were conducted by the Army Veterinary Service at the Medical Field Service School, Carlisle Barracks, Pa., and at the Chemical Warfare School, Edgewood Arsenal, Md. At the last-named installation, Veterinary Corps officers were engaged in research investigations on animal health hazards and in the design of protective equipment and procedures in regard to military animals and the Army food supply. The principles of veterinary professional services under conditions of chemical warfare attack that were developed at the Chemical Warfare School were set forth in official Army training manuals (*71*, *72*, *73*).

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